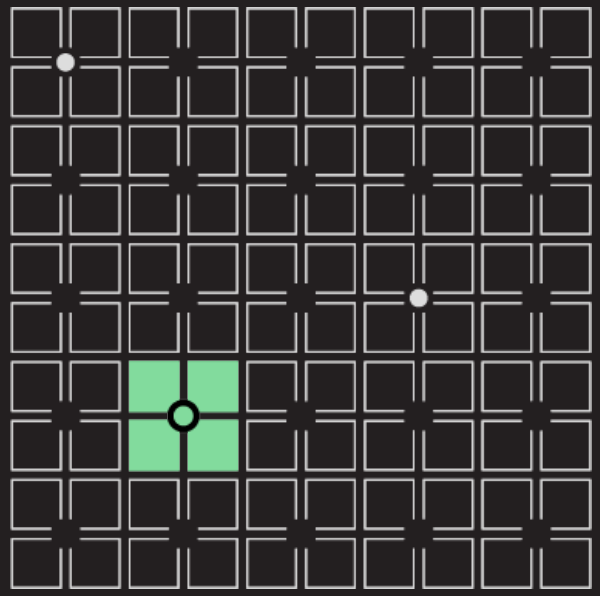
CAREER PATHWAYS AND COMPETENCY MAPS



EmployIndy Ascend INDIANA TECHPOINT

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REPORT OVERVIEW

In 2021, TechPoint (in partnership with EmployIndy and Ascend Indiana) partnered with The Council for Adult and Experiential Learning (CAEL) to identify top occupations and lay out occupational competency maps and career pathways that highlight existing and emerging opportunities within the Information Technology sector across Indiana.

The ultimate goal of this effort was to identify a set of validated competencies for critical occupations and pathways that complement tech employers' in-demand roles and provide foundational alignment and consensus across all employers. Aiming for 80 percent shared competencies and languages across employers, this project endeavors to broadly serve hiring managers and provide the basis for further alignment work, smoother career on-ramps, and more effective pathways for guiding talent into gateway roles.

Sources of this report include Emsi, Burning Glass Labor Insights, BLS, and O*Net, among others. This particular report covers the Indianapolis Metropolitan Statistical Area (MSA).

The competency maps and career pathways developed will serve as resources for TechPoint and other regional stakeholders to assist and guide job seekers interested in entering and advancing in information technology occupations. These competency maps and career pathways will highlight competencies, education requirements, and expected salary ranges, as well as some of the most common and realistic entry and transition points.

Validation of this report occurred with representatives from TechPoint, EmployIndy, and Indiana tech employers via three Advisory Committee meetings and six Focus Group convenings (three each focused on tech-skilled roles and business-skilled roles). An additional four pathways were developed via 12 Advisory Committee and Feedback meetings. Feedback was gathered during each interaction and incorporated into the final product. This document is a living resource that may be continuously updated and altered based on ongoing labor market changes as well adding career pathways as they are developed.

PURPOSE

As automation and changing economic factors continue to impact American workers in traditionally stable industries, it is critical that employers better understand and plan for these changes. Declining and emerging industries and occupations significantly impact workers and employers. The best plan to counteract any negative economic impact resulting from industry and occupation volatility and prepare for jobs that do not exist today is to create roadmaps for how individuals transfer competencies and knowledge to high-growth industries. TechPoint recognized the value of plotting a roadmap and contracted CAEL to develop an actionable resource to inform how to design and implement processes to identify the best job opportunities in Information Technology.

By outlining in-demand and growth-oriented Information Technology occupations in the Indianapolis MSA and mapping how competencies gained transfer to entry-level and high-growth opportunities, our community can create awareness among job-seekers and businesses and provide more line of sight on how specific competencies support the fulfillment of critical jobs in the community. Additionally, this report guides TechPoint on crucial decisions regarding the allocation of resources and the prioritization of its next steps.

DEVELOPMENT PROCESS

Data gathering for this project began in the Fall of 2021 when CAEL provided data analytics insights for the Information Technology landscape across Indiana. In partnership with TechPoint and EmployIndy, CAEL used various data sets as the basis to determine the destination occupations for this project. CAEL chose to look at occupations projecting increased (or advanced growth) employment numbers across the Indianapolis MSA. In early January 2022, TechPoint received consensus from the Advisory Committee on the top six occupations (three each for the tech- and business-skilled roles) for the development of career competencies and pathway development. From there, the Focus Groups surfaced essential suggestions and questions about the competencies and credentials for deeper discussion and alignment. During an ongoing effort through February, the pathways were refined. In June 2022, TechPoint continued the industry engagement process to build career competencies and pathway development for four additional in-demand tech occupations.

PARTNERS

TechPoint would like to thank the following employers who answered the call to help provide content and context to the final maps and pathways with the leadership on the Advisory Committee, Focus Groups, and Feedback Process:

- Accenture
- Aunalytics
- BCforward
- Boyce Forms-Systems
- Cummins
- DMI
- Eli Lilly and Company
- Five Star Technology Solutions
- Genesys
- hc1
- High Alpha
- Holy Cross College
- Indiana Office of Technology
- Indiana Department of Homeland Security
- Infosys
- Ivy Tech Community College
- Matrix Integration
- Moser Consulting
- Naval Surface Warfare Center, Crane Division
- Parkview Health
- Resultant
- Salesforce
- Sandler DTB
- SEP
- Springbuk
- STAR Bank
- State of Indiana
- Subaru
- Transcend Consulting
- UKG
- Vespa Group
- Wunderkind

INDUSTRY-WIDE FOUNDATIONAL COMPETENCIES

Below, please find a list of top foundational competencies within the Information Technology industry. Foundational competencies are defined as core competencies that provide a foundation for success in school and in the world of work. Nationally, employers have identified a link between foundational competencies and job performance and foundational competencies are often a prerequisite for workers to learn new industry-specific competencies. Foundational competencies are broken down into three categories as defined below:

INFORMATION TECHNOLOGY: INDUSTRY-WIDE FOUNDATIONAL COMPETENCIES

PERSONAL EFFECTIVENESS COMPETENCIES

These competencies are essential for all life roles such as being a member of a family, a community, and a larger society. These "soft skills" are increasingly valued in the labor market.

- **Interpersonal Competencies:** Displaying competencies to work effectively with others from diverse backgrounds.
- **Professionalism:** Maintaining a professional presence when working with clients and partners, and on social media that aligns with company culture.
- **Adaptability:** Displaying the capability to adapt to new, different, or changing requirements.
- **Lifelong Learning:** Demonstrating a commitment to self-development and improvement of knowledge and competencies.
- **Integrity:** Displaying strong moral principles and work ethic.
- **Initiative:** Exercising a self-starter orientation and a commitment to effective job performance by taking action on one's own and following through to get the job done.
- **Dependability:** Displaying responsible behaviors at work including completing work on time and being persistent in seeing issues through to resolution.
- **Humility:** Willingness to learn, adapt and be mentored by senior staff.

EDUCATION COMPETENCIES

These are critical competencies primarily learned in an academic setting, as well as cognitive functions and thinking styles. These competencies are likely to apply to all organizations in a single industry or be represented by an industry association nationwide.

- **Communication:** Listening, speaking, and signaling so others can understand using a variety of methods, including hearing, speech, American Sign Language, instant messaging, text-to-speech devices, etc.
- **Basic Computer Competencies:** Using information technology and related applications, including adaptive devices and software, to convey and retrieve information.
- **Critical & Analytical Thinking:** Using logical thought processes to analyze information and draw conclusions.
- **Reading:** Understanding written sentences, paragraphs, and figures in work-related documents on paper, on computers, or adaptive devices.
- **Writing:** Using standard business English to compile information and prepare written documents on paper, computers, or adaptive devices.
- **Mathematics:** Using mathematics to express ideas and solve problems.
- **Science & Technology:** Using scientific rules and methods to express ideas and solve problems on paper, on computers, or on adaptive devices.

WORKPLACE COMPETENCIES

These competencies represent those competencies and abilities that allow individuals to function in an organizational setting.

- **Problem Solving/Decision Making:** Generating, evaluating, and implementing solutions to problems.
- **Leadership:** Managing and leading team members to successful outcomes in the workplace.
- **Teamwork:** Working cooperatively with others to complete work assignments, especially while utilizing collaborative software.
- **Scheduling/Coordinating:** Making arrangements that fulfill all requirements as efficiently and economically as possible.
- **Customer Focus:** Efficiently and effectively addressing the needs of clients/customers.
- **Instruction/Teaching:** Teaching others how to do something.
- **Detail Orientation:** Being accurate and thorough in review and development of work materials/content.
- **Creative Thinking:** Generating innovative and creative solutions.

INFORMATION TECHNOLOGY

IT SUPPORT TECHNICIAN

JOB DESCRIPTION	Provide technical assistance to computer users. Answer questions or resolve computer problems for clients in person, or via telephone or electronically. May provide assistance concerning the use of computer hardware and software, including printing, installation, word processing, electronic mail, and operating systems.
KEY FOUNDATIONAL COMPETENCIES	Verbal and Written Communication, Emotional Intelligence, Adaptability, Problem Solving/Decision Making, Leadership, Initiative, Detail Orientation, Time Management, Active Listening, Read and Understand Logic, Collaborative and Teamwork, Risk Taking, Mentorship

OCCUPATIONAL COMPETENCY	NOVICE	EMERGING	PROFICIENT
TECH SUPPORT: INFRASTRUCTURE Uses components of commonly used computer hardware, software, applications, etc.; diagnoses customer problems; and provides troubleshooting and issue resolution support.	Provide technical assistance to computer users. Answer questions or resolve computer problems for clients in person, or via telephone or electronically. May provide assistance concerning the use of computer hardware and software, including printing, installation, word processing, electronic mail, and operating systems.	Troubleshoots basic issues and identifies resolution tasks. Track-specific examples: • Server: The server is out of hard drive space. • Network: A jack is giving erroneous information. • Desktop: There are errors in end-user applications (e.g., Outlook is crashing).	Troubleshoots and effectively resolves basic to moderate infrastructure issues with confirmation from the customer that the issue has been resolved.
IT/HARDWARE Assembles, configures, installs; maintains, and repairs computer and device hardware and IT systems.	Describes how to properly install and connect hardware. Track-specific: • Server: Describes how to connect servers. • Network: Describes how to connect and integrate hardware to network. • Desktop: Connects and tests work stations including computers cables, and docking stations.	Installs, connects, and tests hardware. Track-specific: • Server: Connects, configures, and tests server hardware. • Network: Connects, integrates, and tests hardware to network. • Desktop: Repairs individual parts or components within a computer/ device.	Track-specific: • Server: Repairs individual parts of an IT server. Performs routine maintenance or standard repairs to hardware components or equipment. • Network: Performs routine maintenance or standard repairs to network components or equipment. • Desktop: Troubleshoots and repairs failed hardware for end-user computers/ devices.
CORE OPERATING SYSTEMS Demonstrates familiarity with the use of multiple operating systems (e.g., Apple, Microsoft, Android, Linux) for computer and mobile devices and installs, configures, and maintains at least one of those operating systems.	Navigates and uses operating systems (e.g., Apple, Microsoft Windows, Android, Linux, iOS). Track-specific: • Server: Windows or Linux • Network: may navigate and use multiple OSs • Desktop: Microsoft, Android, and Apple, Chrome	Installs and configures operating systems Addresses individual user issues and assists with issues of larger scope. Track-specific: • Network: Configures OSs, does not install.	Configures, optimizes, and maintains (e.g., patching or security updates), and troubleshoots operating systems for a larger scope of IT systems (e.g., a section or department of computers in a company).

INFORMATION TECHNOLOGY

IT SUPPORT TECHNICIAN

OCCUPATIONAL COMPETENCY	NOVICE	EMERGING	PROFICIENT
SOFTWARE APPLICATIONS Installs, configures, and maintains a wide variety of software applications.	Demonstrates ability to use basic application menus and functions. Track-specific: • Server: Active Directory (Windows), IIS (web server) • Network: IT support applications; Cloud and SaaS • Desktop: Business productivity such as MS Office Suite (end-user)	Installs, performs initial configuration, and tests a wide variety of software applications specific to their track (server, network, or desktop).	Performs advanced configuration and maintains and enhances a wide variety of software applications.
GENERAL NETWORKING TOOLS AND CONCEPTS (NETWORK ONLY) Provides network support with commonly used tools/devices, including: routers, switches, wireless, ethernet cabling, and firewalls; manages IP addresses and runs cabling.	Provides basic network support using common diagnostic devices (e.g., WireShark, Cisco switches). Describes OSI layers, WAN, and LAN.	Repairs and replaces cabling and most networking hardware (e.g., routers, switches, wireless, and firewalls).	Track-specific: • Server: Repairs individual parts of an IT server. Performs routine maintenance or standard repairs to hardware components or equipment. • Network: Performs routine maintenance or standard repairs to network components or equipment. • Desktop: Troubleshoots and repairs failed hardware for end-user computers/devices.
GENERAL INFORMATION SECURITY Installs, configures, troubleshoots, tests, and maintains in a secure manner the portion of the IT environment under their responsibility (networks, communication, hardware, software, and other devices) to ensure confidentiality, integrity, and availability.	Describes how to properly secure the portion of the IT infrastructure in their area of responsibility. Track-specific: • Server: Describes how to protect and secure server, hardware, and operating systems. • Network: Describes how to protect and secure network hardware. • Desktop: Describes how to protect and secure end-user work stations including computers and devices.	Documents security measures and adheres to risk, compliance, and company policy.	Implements and documents security measures. Aids in recovery when problems arise (e.g. eradicates a virus, solves for a hard drive crash). Analyzes security scans and implements remediation action steps (e.g., security patching).

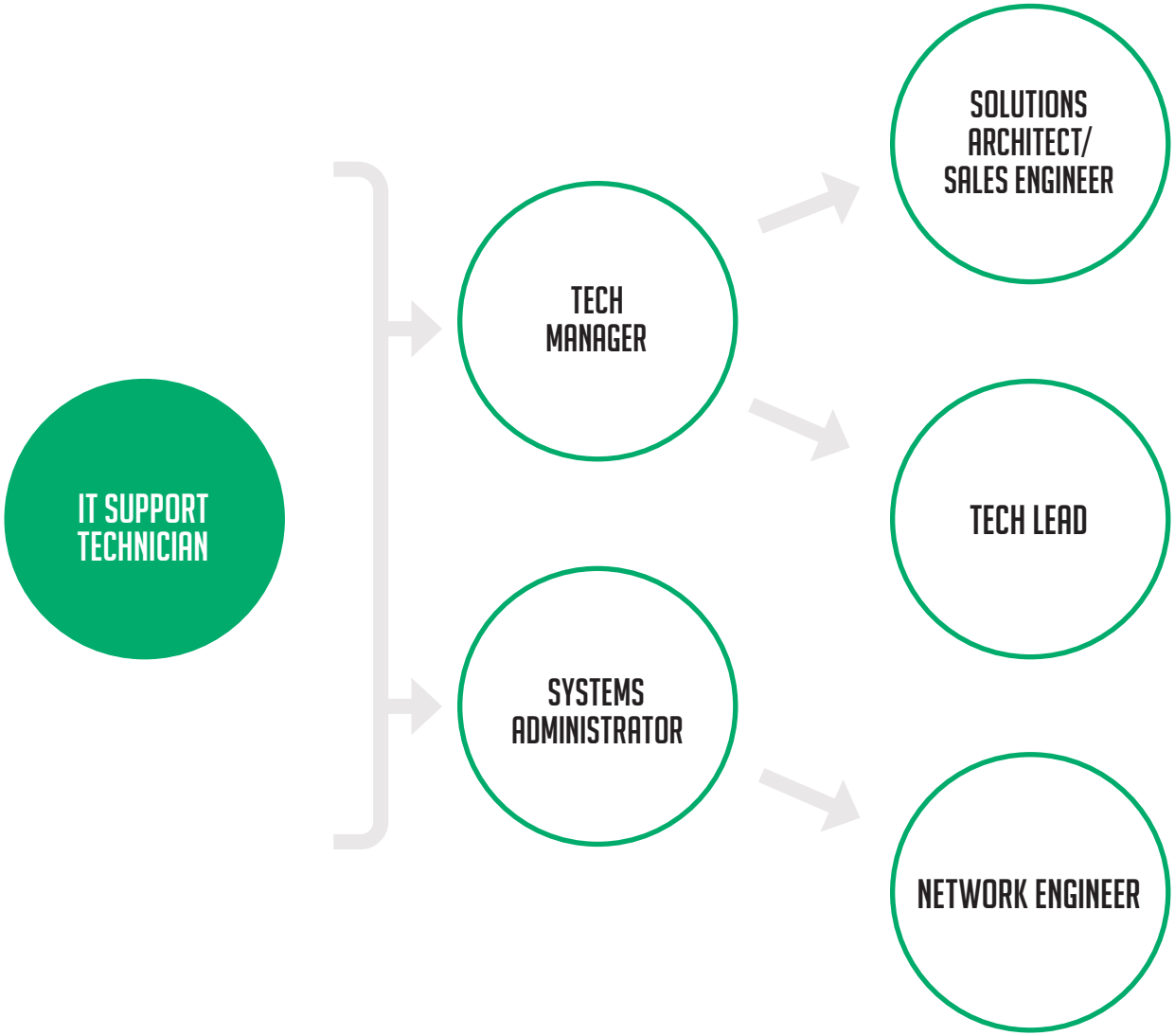
INFORMATION TECHNOLOGY

IT SUPPORT TECHNICIAN

SALARY RANGE	**Entry Level:** $36,000 - $60,000	**Advanced Level:** $60,000 - $75,000
CREDENTIALS	**Required:** Career and technical education training. Some employers require a certification or an associate degree in Information Technology or related field; or short-term certificates/ credentials	**Optional/Dependent on Specialty:** Some employers may require a certification or associate's degree. **License:** FCC License (useful, not required) **Certifications:** A wide range of certifications may be considered for this role, such as Microsoft Technology Associate (MTA) CompTIA A+, Net +, Security +, CCNET, and Specific Product/Vendor Certifications
WORK EXPERIENCE	**Entry Level:** 0-3 years	**Advanced Level:** 3 -5 years
OTHER JOB TITLES/ROLES	Computer Specialist, Computer Support Specialist, Computer Technician, Desktop Support Technician, Help Desk Analyst, Help Desk Technician, Information Technology Specialist (IT Specialist), Network Technician, Support Specialist, Technical Support Specialist, Residential Installation and Service Technician	

IT SUPPORT TECHNICIAN PATHWAY

The pathway below represents a typical career pathway in the ever-changing industry of Information Technology. The key occupation is represented by the colored-in circle.



INFORMATION TECHNOLOGY

ASSOCIATE/JUNIOR DEVELOPER

JOB DESCRIPTION

Under the direction of a developer, Associate/Junior Developer are heavily involved in programming by implementing simple code or modifying established applications. They may be responsible for responding to client support requests by investigating, analyzing, debugging, and rectifying simple issues. They gather user needs to develop and maintain software solutions and work within a team to design and complete projects.

KEY FOUNDATIONAL COMPETENCIES

Verbal and Written Communication, Emotional Intelligence, Problem Solving/Decision Making, Leadership, Initiative, Detail Orientation, Time Management, Listening, Read and Understand Logic, Collaborative and Teamwork, Risk Taking, Mentorship

OCCUPATIONAL COMPETENCY	NOVICE	EMERGING	PROFICIENT
SOFTWARE DEVELOPMENT BEST PRACTICES Understands software assurance best practices and their use in software development.	Uses version control.	Describes multiple vulnerabilities and how to prevent them when designing applications (e.g., encryption, SQL injection, CAPTCHA). Describes object- oriented principles such as encapsulation or polymorphism. Describes the value of a design pattern. Manages version control (e.g., branching, merging). Participates in code reviews and implements techniques to prevent vulnerabilities (e.g., encryption, CAPTCHA).	Troubleshoots and effectively resolves basic to moderate infrastructure issues with confirmation from the customer that the issue has been resolved.
CORE CODING LANGUAGES Develops simple frontend, backend and/or mobile applications utilizing core coding languages (e.g., Java, C#, Objective C, JavaScript, Swift) on a development platform; integrates data storage (including SQL), libraries, methods, interfaces, and objects and uses code analysis and debugging techniques; web developers need to be able to integrate HTML, CSS, web services (including REST), and a web framework (such as Angular or Spring MVC) into applications.	Codes simple software tasks or routines in support of software development work. May create simple web pages. Able to create and execute unit tests.	Develops prototypes that can be used by a supervisor/senior software developer. Contributes to research and development processes. Creates applications leveraging object-oriented techniques that can be reliably used by a customer in production. Integrates data storage (including SQL), libraries, methods, interfaces, and objects.	

INFORMATION TECHNOLOGY

ASSOCIATE/JUNIOR DEVELOPER

OCCUPATIONAL COMPETENCY	NOVICE	EMERGING	PROFICIENT
WEB DEVELOPMENT Understands commonly used web development languages such as AJAX, XML, HTML 5,and JavaScript.	Describes and uses the web development language of HTML. Builds an application using HTML, JavaScript, and JSON/XML.	Builds an application using HTML, JavaScript, and JSON/XML. Uses at least one Common framework (e.g., Twitter Bootstrap, Angular, React.js, or Spring MVC, Vue.js.).	
GENERAL DATABASE Uses SQL basics (e.g., selecting, inserting, updating, deleting records), at least one database management software application, and database fundamentals such as normalization, schemas, and relationships.	Describes CRUD operations and at least one type of database (e.g. document, relational). Uses database concept (e.g., tables, columns, rows, schema, relationships, indexes).	Designs document, relational, or other schema(tables, stored procedures, etc.) components. Performs SQL CRUD operations with at least one database management software application.	
SOFTWARE DEVELOPMENT TOOLS Utilizes an IDE (Integrated Development Environment) (e.g., Visual Studio) and a source control system such as TFS or GitLab.	Utilizes an IDE to write code, perform version control, and debug simple software issues. Able to use a source control system such as TFS or GitLab.	Debugs more complex software issues. Incorporates libraries and frameworks into base code solutions. Utilizes available features inside IDE such as unit testing automation and environment management.	
DESIGN AND IMPLEMENTATION Assists customers in the gathering of requirements, and designs, implements, and supports simple technology solutions to existing business problems.	Describes a software development life cycle (SDLC).	Assists customers to elicit and document customer requirements.	

INFORMATION TECHNOLOGY

ASSOCIATE/JUNIOR DEVELOPER

SALARY RANGE

Entry Level: $70,000 - $80,000

TECHNOLOGIES

- Access software
- Accounting software
- Analytical or scientific software
- Application server software
- Backup or archival software
- Business intelligence and data analysis software
- Communications server software
- Computer aided design CAD software
- Configuration management software
- Content workflow software
- Customer Relationship Management CRM software
- Database management system software
- Database reporting software
- Database user interface and query software
- Data mining software
- Development environment software
- Document management software
- Electronic mail software
- Integrated Development Environment (e.g., Visual Studio)
- Enterprise resource planning ERP software
- Enterprise system management software
- Software Development Life Cycle Methodologies [Agile]
- File versioning software

CREDENTIALS

Required:

Boot camp or Coding Academy for most employers

Some employers require an associates or Bachelor's degree in Computer Science, Information Science or related field

Optional/Dependent on Specialty: Certifications in specific software programs

Certifications:

- CIO Certifications
- Project Management
- ITIL (Entry)
- Certified Associate in PM
- (CAPM) - Entry Professional (PMP)

WORK EXPERIENCE

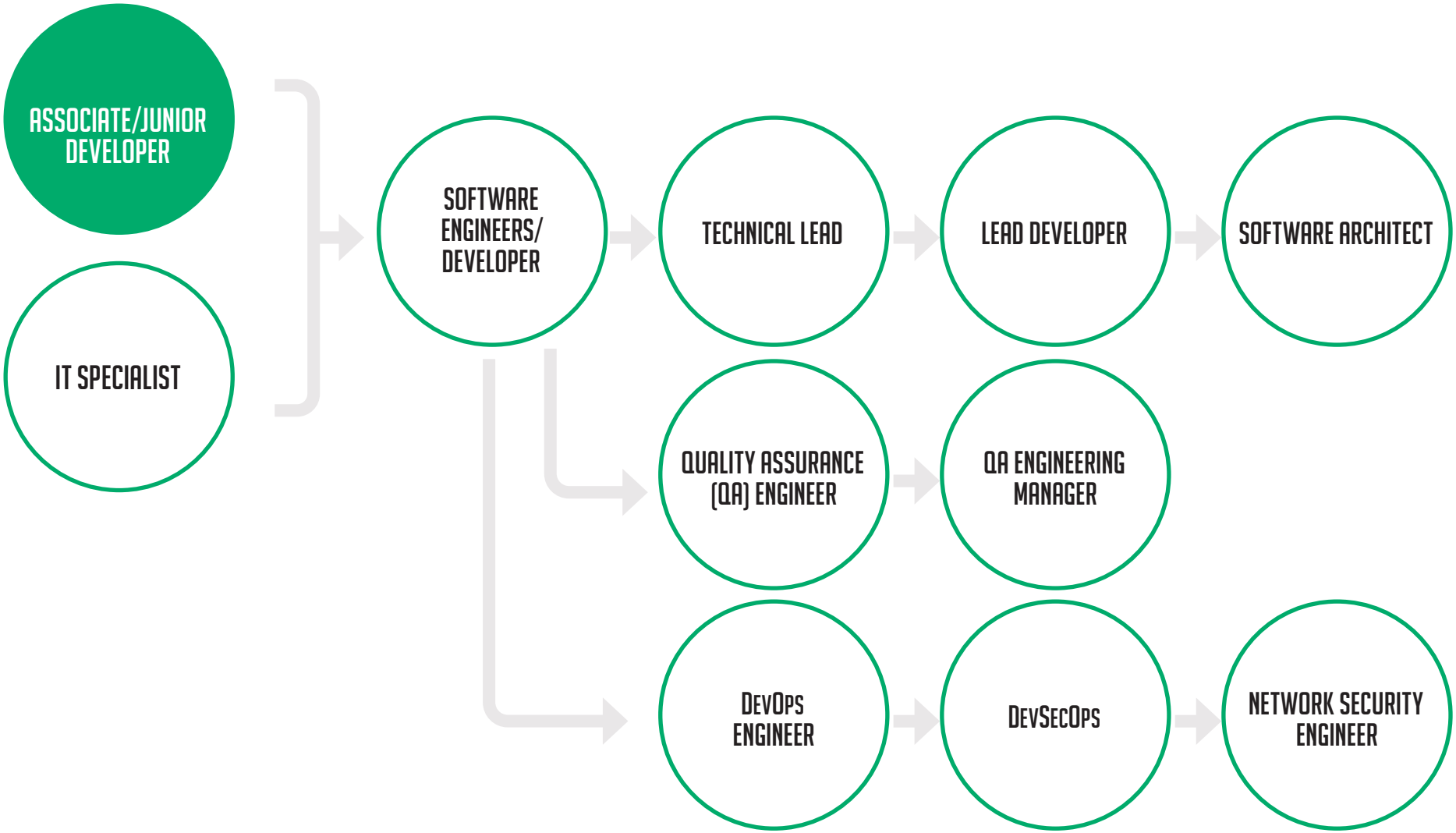
Entry Level: 0-2 years

OTHER JOB TITLES/ROLES

.NET Developers, Statistical Programmers, Programmers, Software Developers, Front End Developers, Game Programmers, Application Developers, SAS Programmers

ASSOCIATE/JUNIOR DEVELOPER PATHWAY

The pathway below represents a typical career pathway in the ever-changing industry of Information Technology. The key occupation is represented by the colored-in circle.



INFORMATION TECHNOLOGY

SOFTWARE DEVELOPER

JOB DESCRIPTION	Develop, create, and modify general computer applications software or specialized utility programs. Analyze user needs and develop software solutions. Design software or customize software for client use with the aim of optimizing operational efficiency. May analyze and design databases within an application area, working individually or coordinating database development as part of a team. May mentor other software developers/coders, particularly if interested in a management path.
KEY FOUNDATIONAL COMPETENCIES	Verbal and Written Communication, Emotional Intelligence, Problem Solving/Decision Making, Role Ownership & Leadership, Proactivity, Detail Orientation, Innovation, Presentation Competencies, Troubleshooting, Craftsmanship/Quality

OCCUPATIONAL COMPETENCY	NOVICE	EMERGING	PROFICIENT
SOFTWARE DEVELOPMENT AND DESIGN	Develop software system testing and validation procedures, programming, and documentation. Allow existing software to adapt to new hardware, or to improve its performance by modifying to correct errors. Develop Web sites. Develop Web applications.	Direct software system testing and validation procedures, programming, and documentation. Strong familiarity with object-oriented development. Ensure specifications are met by coordinating software system installation and monitoring equipment functioning. Able to craft code in a way to support maintainability and extension. Provides mentoring of less experienced software engineers.	Write, analyze, review, and rewrite programs, using workflow charts and diagrams, and applying knowledge of computer capabilities, subject matter, and symbolic logic. Architect, design, develop and modify software systems by using scientific analysis, design patterns, high level architectural practices, and mathematical models to predict and measure outcome and consequences of design.
CORE CODING LANGUAGES	Develops simple frontend, backend applications utilizing core coding languages (e.g., Java, C#, Objective C, JavaScript, Swift) web developers need to be able to integrate HTML, CSS, web services (including REST), and a web framework (such as Angular or Spring MVC) into applications.	Develops complex frontend, backend and/or mobile applications utilizing core coding languages (e.g., Java, C#, Objective C, JavaScript, Swift). Build development platform; integrates data storage (including SQL), libraries, methods, interfaces, and objects. Performs code reviews to apply standards and support quality in code base.	Uses code analysis and debugging techniques. Designs architecture for development and execution by other software engineers.

INFORMATION TECHNOLOGY

SOFTWARE DEVELOPER

OCCUPATIONAL COMPETENCY	NOVICE	EMERGING	PROFICIENT
SOFTWARE PROGRAM ANALYSIS AND TESTING	Convert workflow charts and diagrams into a series of instructions coded in a computer language. Conduct trial runs of programs and software applications to be sure they will produce the desired information and that the instructions are correct. Write unit tests to ensure correct functioning of application.	Prepare detailed workflow charts and diagrams that describe input, output, and logical operation. Perform systems analysis and programming tasks to maintain and control the use of computer systems software as a systems programmer. Investigate whether networks, workstations, the central processing unit of the system, or peripheral equipment are responding to a program's instructions.	Perform scalability and load testing of applications. Design and implement continuous integration environments to run automated testing as software developers extend the functionality of an application.
DATA ANALYSIS	Store, retrieve, and manipulate data for analysis of system capabilities and requirements.	Analyze information to determine, recommend, and plan computer specifications and layouts, and peripheral equipment modifications.	Determine system performance standards.
SOFTWARE DEVELOPMENT TOOLS	Utilizes an IDE (Integrated Development Environment) (e.g., Visual Studio) and a source control system such as TFS or GitLab.	Proficient in the use of an IDE.	Capable of helping a company to select a new IDE.
SOFTWARE PROGRAM MANAGEMENT & DOCUMENTATION	Correct errors by making appropriate changes and rechecking the program to ensure that the desired results are produced. Perform revision, repair, or expansion of existing programs to increase operating efficiency or adapt to new requirements. Write, update, and maintain computer programs or software packages to handle specific jobs such as tracking inventory, storing or retrieving data, or controlling other equipment. Compile and write documentation of program development and subsequent revisions, inserting comments as needed in the coded instructions so others can understand the program.	Direct revision, repair, or expansion of existing programs to increase operating efficiency or adapt to new requirements.	Assist in architectural decisions and help structure teams of software developers to achieve desired results.

INFORMATION TECHNOLOGY

SOFTWARE DEVELOPER

OCCUPATIONAL COMPETENCY	NOVICE	EMERGING	PROFICIENT
FEASIBILITY ANALYSIS			Determine feasibility of design within time and cost constraints by analyzing user needs and software requirements.
RISK MANAGEMENT, SECURITY & INFORMATION ASSURANCE	Understand and implement cybersecurity protocols and protections. Protect data, software, and hardware by implementing network security measures.	Protect data, software, and hardware by planning network security measures.	Understand the importance of risk testing and quality assurance best practices. Protect data, software, and hardware by coordinating network security measures.

INFORMATION TECHNOLOGY

SOFTWARE DEVELOPER

SALARY RANGE	**Entry Level:** $66,000 - $95,000	**Advanced Level:** $95,000 - $168,000
TECHNOLOGIES	• Access software, Accounting software • Analytical or scientific software, Application server software • Backup or archival software, intelligence and data analysis software • Communications server software • Computer aided design CAD software • Configuration management software • Content workflow software • Customer relationship Business management CRM software • Database management system software	• Database reporting software • Database user interface and query software • Data mining software • Development environment software • Document management software • Electronic mail software • Enterprise application integration software • Enterprise resource planning ERP software • Expert system software • File versioning software
CREDENTIALS	**Required (Software Developer):** Some employers require Bachelor's degree in Computer Science, Software Engineering or related field; Master's in Computer Science or related field **Preferred:** Some years of experience in the field	**Optional/Dependent on Specialty:** Associate degree in computer science, or software engineering technology or software systems engineering. Certificates in Computer Programming, SQL, Database Management, or other specific programming language, Security/PCI Compliance, A+, Net +, Security +, CCNA, CCNP, Cloud Architect, Specific Product/Vendor Certifications **Certifications:** Web Development, DevOps, Mobile Development or Technical Stack, C++IEE Professional Software Developer Certification (or license), Agile Cert (9 or 12 Credit), CompTIA Project+, CAPM, Microsoft SQL, Microsoft Solutions, Google Suite, AWS Suite, Scrum Master, ASQ, Microsoft Azure, Project Management Professional Certification
WORK EXPERIENCE	**Entry Level:** 1-3 years	**Advanced Level:** 3-5 years
OTHER JOB TITLES/ROLES	Software Engineers (Senior), Software Developer, Systems Engineers, DevOps Engineers, Front End Software Engineers, Full Stack Developers, Data Engineers, .NET Developers, Full Stack Software Engineers, Lead Software Engineers, Cloud Engineer, Service Desk Engineer, Systems Engineer	

SOFTWARE DEVELOPER PATHWAY

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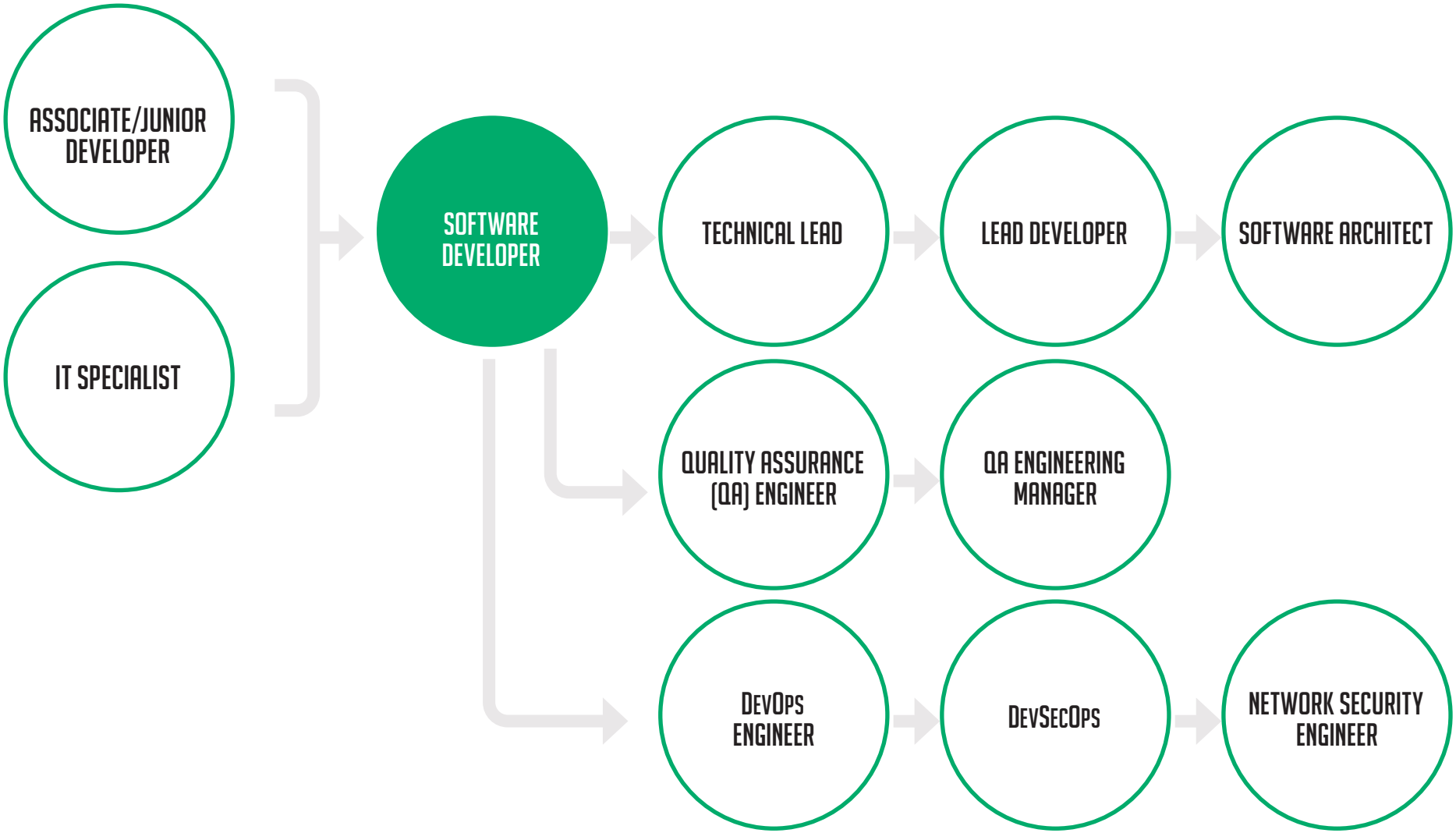


INFORMATION TECHNOLOGY

BUSINESS/DATA ANALYST

JOB DESCRIPTION	Conduct organizational studies and evaluations, design systems and procedures, conduct work simplification and measurement studies, conduct business intelligence and data analyses, prepare operations and procedures reports. Includes program analysts and management consultants.
KEY FOUNDATIONAL COMPETENCIES	Written and Verbal Communications, Problem Solving/Decision Making, Systems Analysis, Detail Orientation, Initiative, Consulting

OCCUPATIONAL COMPETENCY	NOVICE	EMERGING	PROFICIENT
BUSINESS MANAGEMENT PRINCIPLES	Knowledge of principles governing business management methods such as strategy planning, methods of efficient production, people and resources coordination.	Knowledge of elaborate methodologies through which a company markets and sells a product or service to generate income.	Ability to apply methodologies.
GATHER INFORMATION AND REQUIREMENTS	Can gather Information & Requirements, Document project requirements, analyze the data to the best of their ability, work internally with an Emerging or Proficient peer to identify gaps requirements.	Experience gathering and clarifying project requirements. Operates more independently.	Experience with applying systematic research methods and communicating with relevant parties in order to find specific information and evaluate research results to assess the information's relevance.
PERFORM BUSINESS ANALYSIS	Able to document business needs.	Perform research on business needs and gather competitive business domain data.	Familiarity with evaluating the condition of a business on its own and in relation to the competitive business domain, performing research, placing data in context of the business' needs and determining areas of opportunity.

INFORMATION TECHNOLOGY

BUSINESS/DATA ANALYST

OCCUPATIONAL COMPETENCY	NOVICE	EMERGING	PROFICIENT
INTERPRET BUSINESS INFORMATION/DATA ANALYSIS	Collect data and statistics.	Uses collected data and statistics to test and evaluate in order to generate assertions and pattern predictions, with the aim of discovering useful information in a decision-making process. Retrieve and analyze different kinds of information with regards to the management of a business in order to draw conclusions on projects, strategies, and developments.	Presentation of information in digestible format and making information usable.
PROVIDE IMPROVEMENT STRATEGIES	Can document root causes and the problems associated.	Identify root causes of problems and submit proposals for effective and long-term solutions.	Analyze and adapt existing business operations in order to set new objectives and meet new goals and future goals.
RECOMMEND CHANGES	Document findings of study.	Prepare recommendations for implementation of new systems, procedures, or organizational changes.	Design, evaluate, recommend, and approve changes of forms and reports present findings to stakeholders.
STATISTICAL ANALYSIS	Experience with software used for analytics, business intelligence, data management, and predictive analytics (e.g., Tableau).	Knowledge of the study of statistical theory, methods and practices such as collection, organization, analysis, interpretation and presentation of data. It deals with all aspects of data including the planning of data collection in terms of the design of surveys and experiments in order to forecast and plan work-related activities.	Present findings to stakeholders.
DEVELOP AND TRACK METRICS	Experience with gather, report, analyze. Need to be liaison between IT + biz.	Create key metrics for a project to help measure its success.	Understands how metrics are likely to drive behavior and how to appropriately balance metrics.

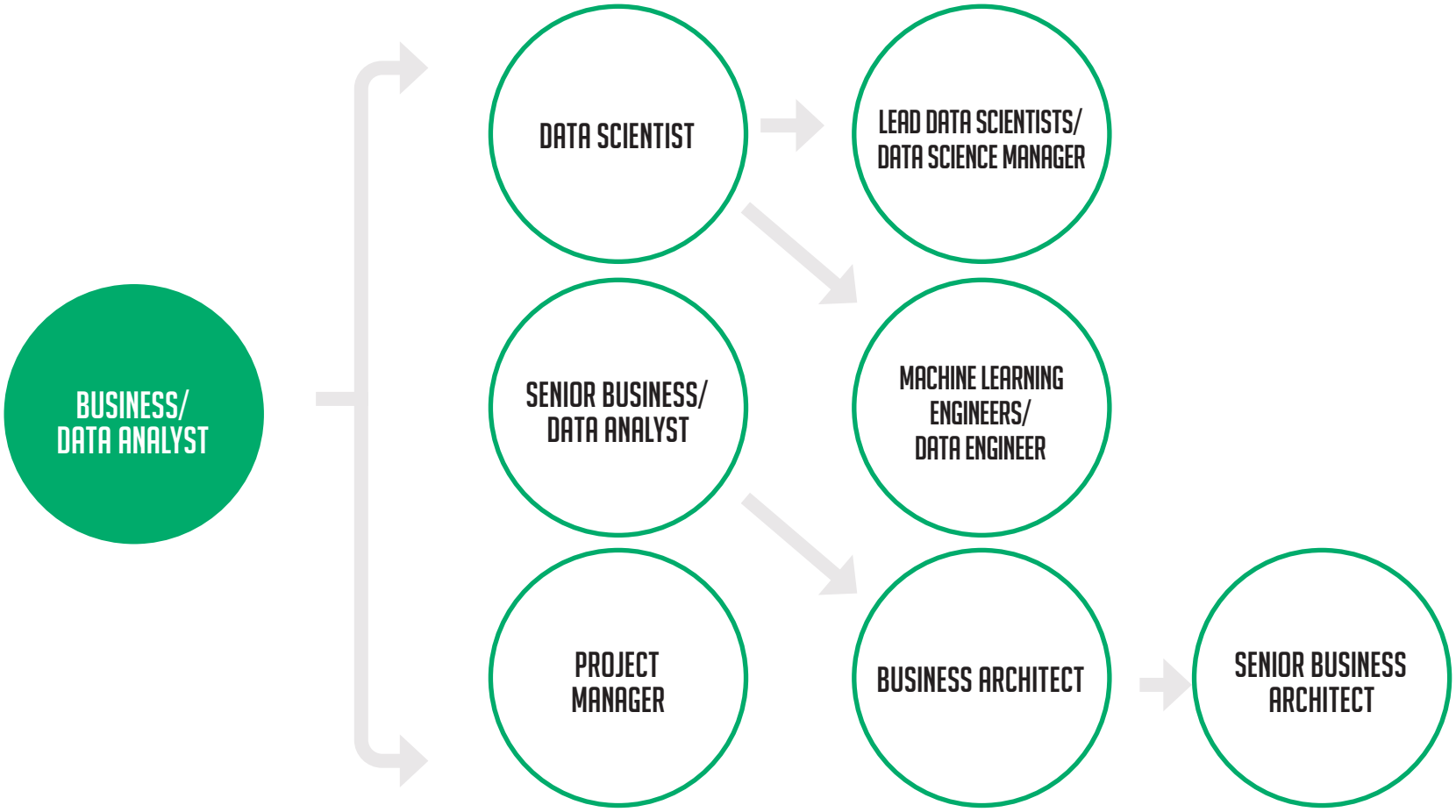
INFORMATION TECHNOLOGY

BUSINESS/DATA ANALYST

SALARY RANGE	**Entry Level:** $55,000 - $80,000 (depending on region and employer)	
TECHNOLOGIES	• Business intelligence and data analysis software • Accounting software • Data visualization software • Enterprise resources planning ERP • Database user interface and query software	• Customer relationships management • Database management system • Database reporting software
CREDENTIALS	**Required:** Bachelor's degree	**Optional/Dependent on Specialty - Certifications:** • Certified Management Consultant (CMC) • Certified Business Analyst • Certified Data Scientist-Foundation • BI Certs (more employer specific)
WORK EXPERIENCE	**Entry Level:** 0-3 years	
OTHER JOB TITLES/ROLES	Administrative Analyst, Business Analyst, Employment Programs Analyst, Leadership, Management Analyst, Management Consultant, Consultant, Program Management Analyst, Quality Control Analyst	

BUSINESS/DATA ANALYST PATHWAY

The pathway below represents a typical career pathway in the ever-changing industry of Information Technology. The key occupation is represented by the colored-in circle.



INFORMATION TECHNOLOGY

PROJECT MANAGER

JOB DESCRIPTION	Project managers ensure that a project is completed on time, within budget, and that its objectives are met. They oversee the project, manage the team, ensure the most efficient resources are used and ensure that all parties involved are satisfied.
KEY FOUNDATIONAL COMPETENCIES	Verbal Communications, Leadership, Detail Orientation, Management, Innovative, Consulting, Organization, Problem Solving/Decision Making, Research/ Presenting, Planning, Influencing, Mentorship, Time Management.
SOFTWARE & HARDWARE TOOLS	**Analytics:** Ability to use business analysis and data analysis tools. Ability to use data visualization tools. (E.g., Tableau) **Customer Feedback/Testing:** Ability to use one or more customer feedback/testing tools (e.g., Aha! Ideas, Formstack, Google Form, Typeform) **Design, Prototyping & Wireframing:** Ability to use design and wire-framing tools (e.g,, Axure, Figma, Flaticon, Framer) **User Experience Testing:** Adobe Target, Contentsquare, FullStory, Helio, Hotjar, Lookback, UXCam

OCCUPATIONAL COMPETENCY	NOVICE	EMERGING	PROFICIENT
INITIATING A PROJECT	Can create draft project charters.	Can create draft project charters Understands key stakeholder needs. Can identify high-level risk, assumptions and constraints. Assures project is aligned with organizational objectives and customer needs.	Creates scope statements that reflect organization and customer needs and expectations (Describe project goals, outcomes, results and implementation scenarios). Can gain buy-in for project charters. Ability to manage multiple project workstreams.
PLANNING A PROJECT	Can establish change management processes. Can develop a quality and risk plan.	Can develop a project schedule and plan (Knowledge to produce accurate calculations on time necessary to fulfill future technical tasks based on past and present information and observations or plan the estimated duration of individual tasks in a given project). Define the workplan, duration, deliverables, resources and procedures a project has to follow to achieve its goals. Can develop a budget, cost management and resource allocation plan.	Gains agreement on project scope and deliverables. Can form and align a project team with clear roles and responsibilities. Driving a team to make decisions.

INFORMATION TECHNOLOGY

PROJECT MANAGER

OCCUPATIONAL COMPETENCY	NOVICE	EMERGING	PROFICIENT
EXECUTING A PROJECT	Gains material resources as needed.	Schedule team work and activities, give instructions, motivate and direct the workers to meet the company objectives. Leads project teams and members working in a team or individually, to maximize their performance and contribution. Successfully manages quality and risk. Manages stakeholder and team member expectations through project.	Can successfully guide team and stakeholders through execution of project plan and achievement of goals. Gains understanding of business goals, process flows and understands project components, identifying dependencies and risks, motivating project team members to meet deliverables.
CLOSING A PROJECT	Follows formal project close out process. Releases project resources.	Lessons learned analyzed and recorded for future projects.	Gains acceptance of all outcomes by project stakeholders. Remediation plan for what went well/ didn't go well.
MONITORING AND COORDINATING A PROJECT	Tracks project using standard PM toolset and keep all stakeholders clearly and reliably informed.	Identify areas for improvement and make suggestions to achieve this.	Risks and quality managed to optimize project outcomes. Project team managed. (Monitor and measure how an employee undertakes their responsibilities and how well these activities are executed.) Lead a group of people to help them achieve goals and maintain an effective working relationship among staff.

INFORMATION TECHNOLOGY

PROJECT MANAGER

SALARY RANGE	**Entry Level:** $68,000 - $74,000	**Advanced Level:** $93,000 - $154,000
TECHNOLOGIES	• Projec • Road Mapping & Tracking • Product Backlog Management • User storyboarding • User experience testing • Collaboration tools • Project management tools • User Analytics	
CREDENTIALS	**Required:** Bachelor's degree in Business or Master's degree in Business Administration or related field, Certified Scrum Master & Product Owner	**Optional/Dependent on Specialty - Certifications:** • PMI Agile Certified Practitioner • Project Management Professional Certification • Certified Power Quality Professional • Salesforce Certification
WORK EXPERIENCE	**Entry Level:** 3-5 years	
OTHER JOB TITLES/ROLES	Product Owners, Software Product Managers, Software Product Owners, Digital Product Managers, Marketing Product Managers	

PROJECT MANAGER PATHWAY

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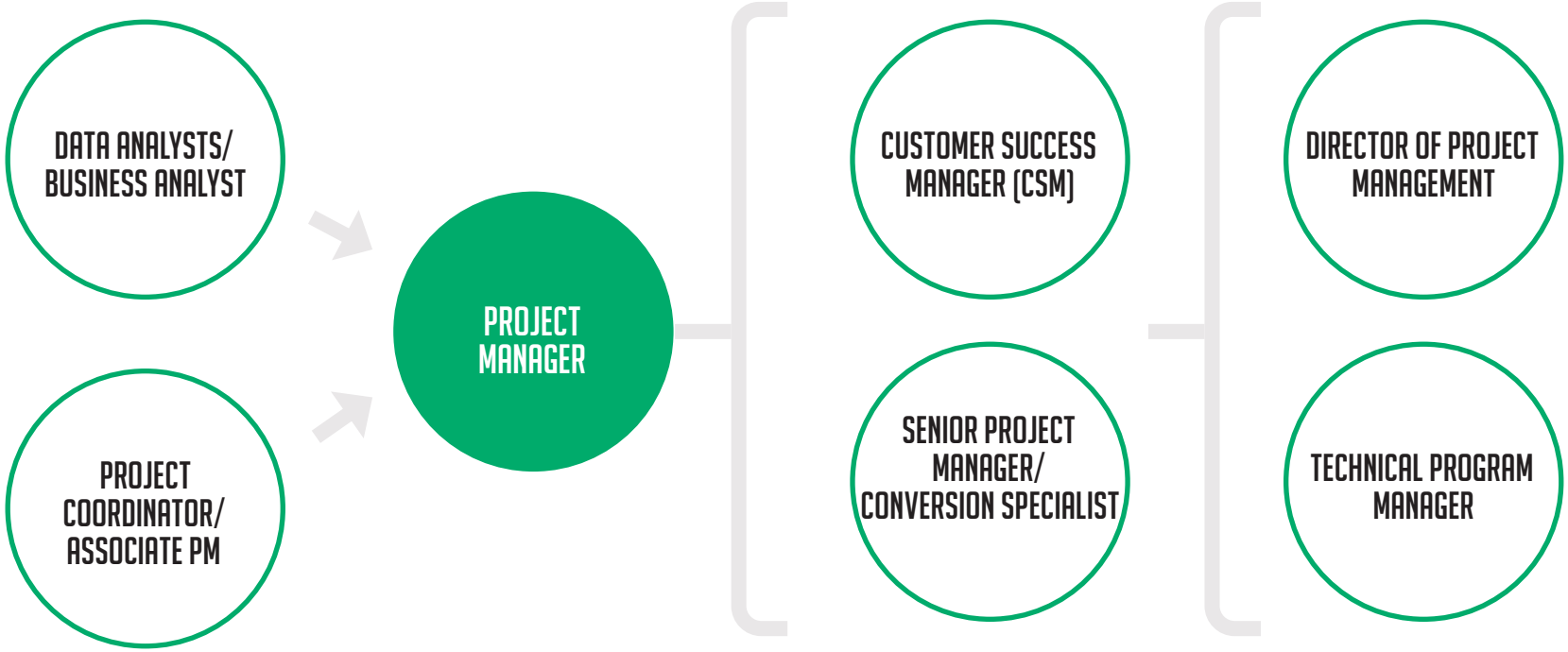

INFORMATION TECHNOLOGY

PRODUCT OWNER

JOB DESCRIPTION	Evaluate and research market and competitors during product development, develop strategies and tactics while cross coordinating with other departments, establish production processes, prioritization, and overseeing each step of development from conception to launch.
KEY FOUNDATIONAL COMPETENCIES	Verbal Communications, Leadership, Detail Orientation, Management, Problem Solving, Innovative, Consulting, Organization, Problem Solving/Decision Making, Research/Presenting, Planning, Influencing, Mentorship, Time Management
SOFTWARE & HARDWARE TOOLS	**Analytics:** Amplitude, Domo, Gainsight, Geckoboard, GoodData, Google Analytics, Heap, Looker, Mixpanel, Segment, Tableau **Customer Feedback/Testing:** Aha! Ideas, Formstack, Google Forms, Survey Monkey, Typeform **Design & Wireframing:** Axure, Figma, Flaticon, Framer, InVision, Mockingbird, Moqups, Sketch, UXPin **User Experience Testing:** Adobe Target, Contentsquare, FullStory, Helio, Hotjar, Lookback, UXCam **Software Development:** Aha! Develop, Azure DevOps, Jira, PivotalTracker, Rally
RISK MANAGEMENT, SECURITY & INFORMATION ASSURANCE	**Client Expectations:** Ensure that products are developed with reasonable client expectations, and at a reasonable cost to the business. **Security:** Maintain security of company's internal and customer data, and confidentiality of products under development

INFORMATION TECHNOLOGY

PRODUCT OWNER

OCCUPATIONAL COMPETENCY	NOVICE	EMERGING	PROFICIENT
MARKET KNOWLEDGE	• Has knowledge of the existing customer base and desired customers for the product or feature • Understanding of where the market is headed • Lead Focus group, interview, and survey development	• Product Knowledge • Technical Knowledge	Ability to manage workflow and usability of product and consumer behavior psychology
PRODUCT MANAGEMENT COMPETENCIES	• Effective meeting design and facilitation • Ability to establish and evangelize a product or feature vision • Value metrics capability • Exceptional research and communication competencies • Customer and product knowledge • Agile development practices • Validation competencies such as beta testing • Basic data modeling, JSON, XML, working knowledge of relational and non-relational databases. SQL, REST APIs, processing data using Python, etc. • Broad understanding of usability, usability testing, usability heuristics. Ability to communicate to the user experience team using a common language • Working knowledge of applications to support storyboards, personas, and wireframes such as Figma or Miro	• Build revenue, pricing, and adoption models. Micro/ macroeconomics • Experiment design and analysis. Statistics • Experience with various analytics tools, and business intelligence tools. Know what you're looking for, and where to find it. • Conduct effective customer/user interviews	• Mapping and understanding complex competitive, partner, and customer ecosystems. Complexity and systems thinking. Domain research • Understanding and identifying competitive advantages
BUSINESS COMPETENCIES AND AWARENESS	• Managing Products as a Business • Creating and communicating product or feature vision, value proposition, and validation outcomes • Strategic understanding of how the product or features meets business strategy. • Ability to interact with customers to understand business problems.	• Building Business Cases • Product Marketing Competencies • Analytical Competencies	• Can successfully demonstrate Pricing Competencies

INFORMATION TECHNOLOGY

PRODUCT OWNER

SALARY RANGE	**Entry Level:** $68,000 - $74,000	**Advanced Level:** $93,000 - $154,000
TECHNOLOGIES	• Product Prototyping & Wireframing • Road Mapping & Tracking • Product Backlog Management • User storyboarding • User experience testing • Collaboration tools • Project management tools • User Analytics	
CREDENTIALS	**Required:** Bachelor's degree in Business or Master's degree in Business Administration or related field, Certified Product Owner with scrum.org	**Optional/Dependent on Specialty - Certifications:** • PMI Agile Certified Practitioner • Project Management Professional Certification • Certified Power Quality Professional • Salesforce Certification
WORK EXPERIENCE	**Entry Level:** 3-5 years	**Advanced Level:** 10+ years
OTHER JOB TITLES/ROLES	Product Owners, Software Product Managers, Software Product Owners, Digital Product Managers, Marketing Product Managers	

PRODUCT OWNER PATHWAY

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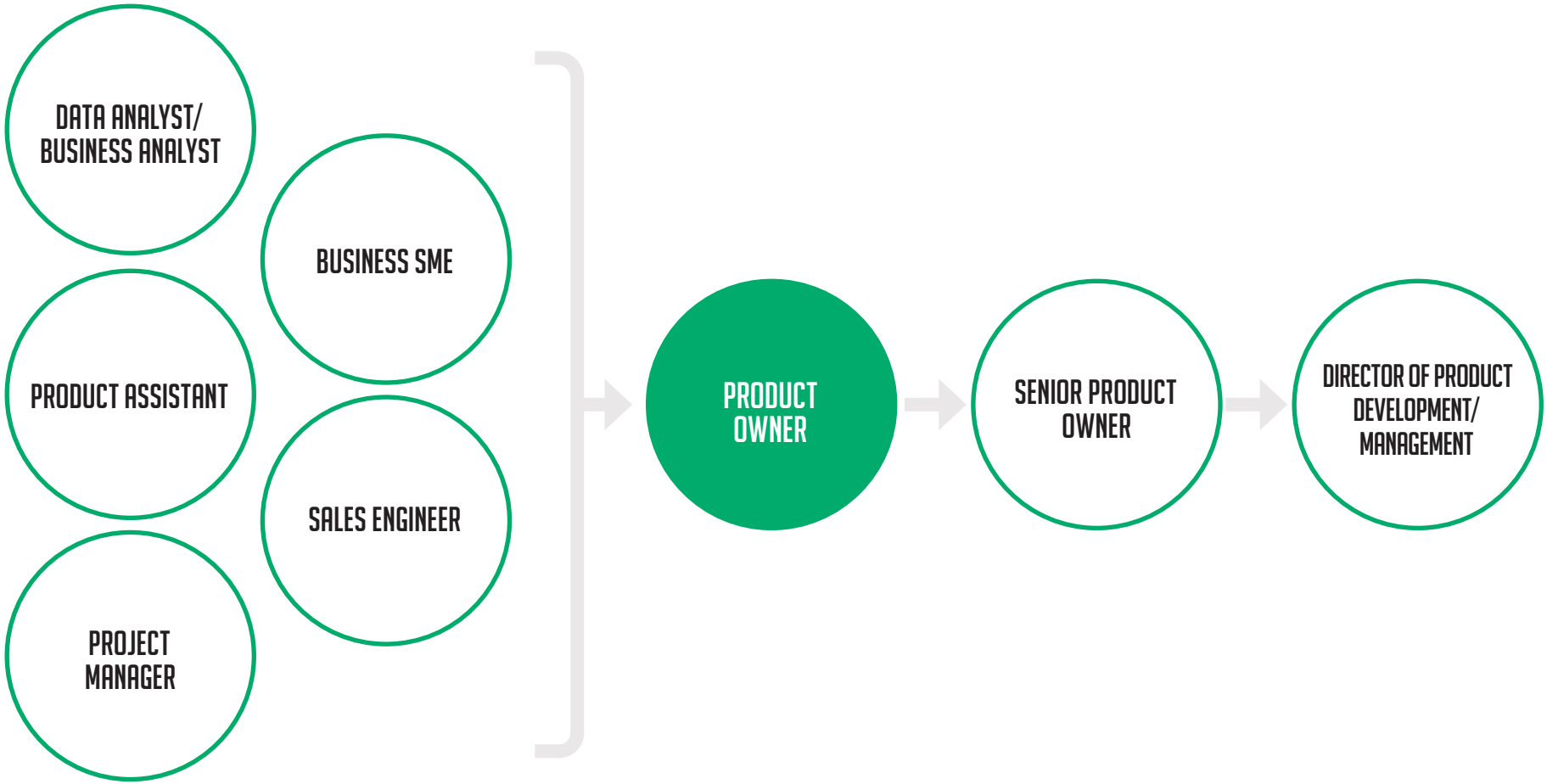

INFORMATION TECHNOLOGY

CYBERSECURITY SPECIALIST

JOB DESCRIPTION

Using the NIST Cybersecurity Framework (Identify, Protect, Detect, Respond, Recover), a cybersecurity specialist plans, implements, and monitors hardware and/or software security measures for information systems and operational infrastructures.

KEY FOUNDATIONAL COMPETENCIES

Integrity, Initiative, Dependability, Communication, Basic Computer Competencies, Logic, Critical & Analytical Thinking, Science & Technology, Problem Solving & Decision Making, Teamwork, Detail Orientation.

OCCUPATIONAL COMPETENCY	NOVICE	EMERGING	PROFICIENT
COMPUTER NETWORK DEFENSE Defensive measures to detect, respond, and protect information, information systems, and networks from threats.	Understand the motivation and processes of a bad actor who is gathering information on a network.	Apply techniques to prevent social engineering and tools of bad actors to detect and access network information.	Troubleshoot and diagnose while effectively utilizing detection tools to defend the network.
INFORMATION ASSURANCE Methods and procedures that protect information systems and data by ensuring their availability, authentication, confidentiality, and integrity as well as the measure of common controls on information systems.	Understand the concept of data integrity and encryption as well as maintaining data consistency processes and procedures.	Implement the methodologies and security policies using encryption algorithms to maintain data integrity and data consistency.	Enforce assisting and developing, enforce security policy for data consistency.
INFORMATION SYSTEMS / NETWORK SECURITY Methods, tools, and procedures, including development of information security plans to prevent information systems vulnerabilities and to provide or restore security of information systems and network services.	Understand network and data system function, architecture, and topology.	Implement defense-in-depth using intrusion detection and prevention systems (IDPS), firewall, Access Control List (ACL).	Evaluating and validating host/ network security systems and maintain policy.
INFRASTRUCTURE DESIGN Architecture and typology of software, hardware, and networks, including LANS, WANS, and telecommunications systems, their components and associated protocols and standards, and how they operate and integrate with one another and with associated controlling software.	Understand the Transmission Control Protocol [TCP] and Internet Protocol [IP], Open System Interconnection Model [OSI], and different protocols that are used in each layer.	Implement different tools at different layers and how to use the protocols tp analyze traffic flow on virtual and physical layers.	Detecting intrusions to analyze and mitigate vulnerabilities in the network topology including hacking techniques to find weaknesses in protocols and improve bandwidth through routing protocols.
VULNERABILITIES ASSESSMENT Principles, methods, and tools for assessing vulnerabilities and developing or recommending appropriate mitigation countermeasures.	Understand vulnerability of hardware and software using tools and methodologies to evaluate physical, virtual, and social environments.	Assess vulnerabilities of hardware and software using tools and methodologies to evaluate physical, virtual, and social environments.	Remedy and provide guidance to correct the vulnerabilities of the physical, virtual, and social environments.

INFORMATION TECHNOLOGY

CYBERSECURITY SPECIALIST

SALARY RANGE	$50,200-$127,590	
CREDENTIALS	**Required:** High School Diploma **Preferred:** Associate's Degree, Bachelor of Science **Note: Certain educational attainment levels are required depending on company and/or government opportunity	**Optional/Dependent on Specialty:** Certifications addressing authentication, security testing, intrusion detection/prevention, incident response and recovery, attacks and countermeasures, cryptography, malicious code countermeasures, system security, network infrastructure, access control, cryptography, assessments and audits, organizational security
WORK EXPERIENCE	**Entry Level:** 1-2 years	
TECHNOLOGIES	Data base user interface and query software, Development environment software, Network monitoring software, Transaction security and virus protection software, Computer networking technologies, Cloud operating technologies, Database systems and scripting, Development environment software, Operation systems, Network and system logging, Network monitoring software	
OTHER JOB TITLES/ROLES	Continuous Diagnostics and Mitigation Specialist, Continuous Monitoring Specialist, Cyber Defense Engineer / Administrator, Cyber Tool Engineer / Administrator, Disaster Recovery / Emergency Management Specialist, Intrusion Detection System Administrator / Technician, Network Security Specialist / Engineer, Systems Security Administrator / Engineer, Embedded Systems Security, Information Security Specialist	

CYBERSECURITY SPECIALIST PATHWAY

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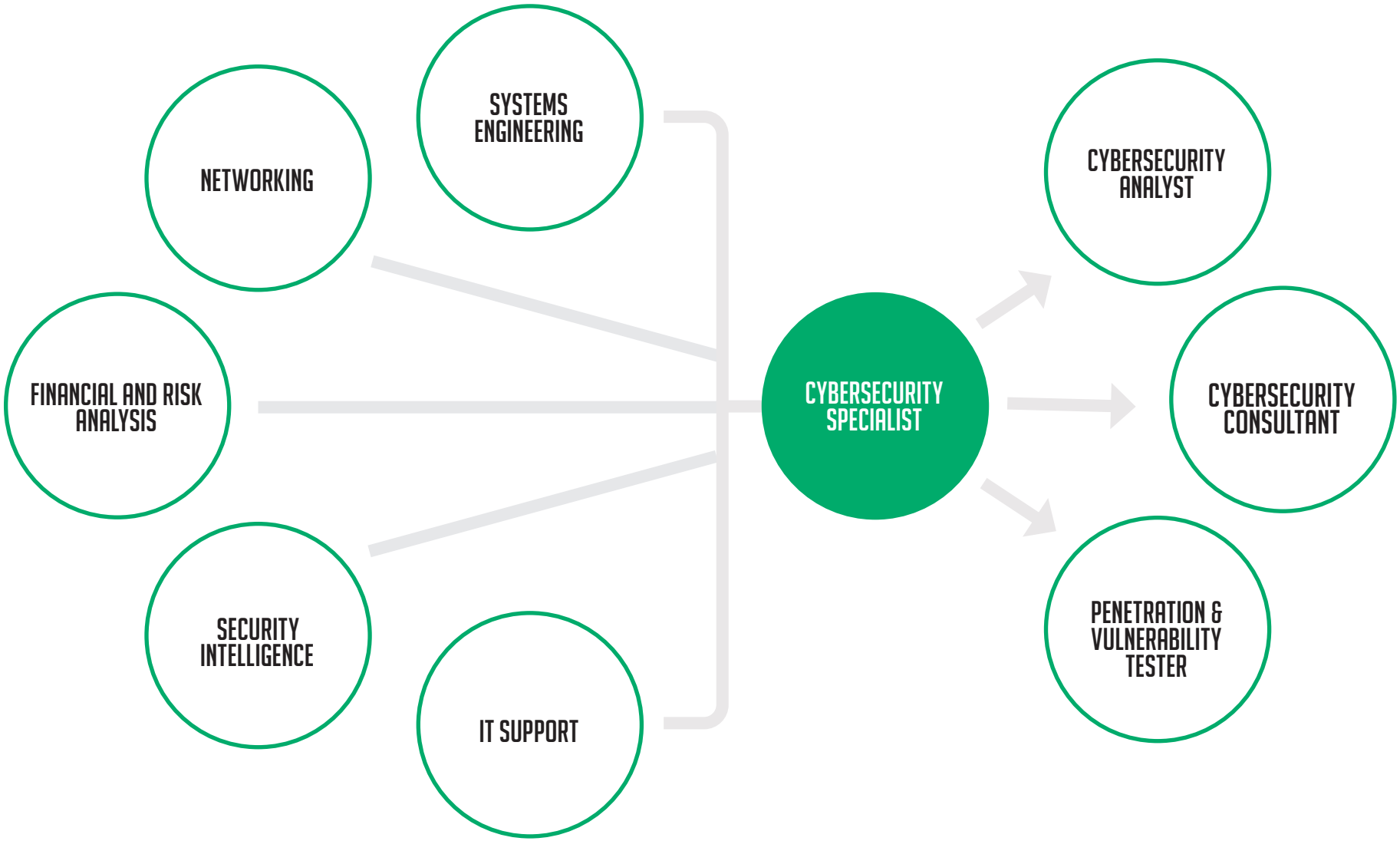

INFORMATION TECHNOLOGY

BUSINESS DEVELOPMENT REPRESENTATIVE

JOB DESCRIPTION	Expand the company's customer base and sell technical products through a combination of market research, networking, and outreach.
KEY FOUNDATIONAL COMPETENCIES	Interpersonal Competencies, Adaptability, Initiative, Communication, Basic Computer Competencies, Critical & Analytical Thinking, Problem Solving & Decision Making, Active Listening

OCCUPATIONAL COMPETENCY	NOVICE	EMERGING	PROFICIENT
SALES PROCESS Knowledge of principles and methods for showing, promoting, and selling products or services. This includes marketing strategy and tactics, product tours, sales techniques, and sales controls systems.	Understand value of the product and/or service.	Effectively use a discovery call process.	Design, redesign, and adapt a sales process.
RELATIONSHIP MANAGEMENT Developing constructive and cooperative working relationships with internal and external individuals, and manage internal processes.	Sees the need to establish internal and external relationships.	Establish internal and external relationships.	Consistently establishes internal and external relationships.
SELF-AWARENESS Individual's tendency to examine their thoughts, motives and behaviors, and how those influence the world around them.	Recognizes the importance of examining their thoughts, motives and behaviors, began to apply basic habits and tools for self-awareness.	Started to consistently stop themselves to assess their thoughts, motives and behaviors, to how those influence the world around them, and making changes to how they interact.	Consistently stop and examine themselves to assess their thoughts, motives and behaviors, to how those influence the world around them, and act with intent.

INFORMATION TECHNOLOGY

BUSINESS DEVELOPMENT REPRESENTATIVE

OCCUPATIONAL COMPETENCY	NOVICE	EMERGING	PROFICIENT
CUSTOMER FOCUS Knowledge of principles and processes for providing customer and personal services. This includes customer needs assessment, meeting quality standards for services, and evaluation of customer satisfaction.	Awareness of and basic application of principles and processes for providing customer and personal services with recognized errors and self or guided correction.	More fluidity and application of principles and processes for providing customer and personal services with minimal errors.	Consistent application of principles and processes for providing customer and personal services meeting quality standards for services and evaluation of customer satisfaction.
SALES PRESENTATION Application of principles and methods for showing, promoting, and selling products or services.	Understanding and use of showing, promoting, and selling products through multimedia elements and tools with coaching and support.	Receive and answer questions relating to the showing, promoting, and selling of company products using multimedia elements and tools addressing customer needs with minimal errors.	Deep product knowledge to receive and address questions for the showing, promoting, and selling of company products with high accuracy and use of multimedia elements and tools tailored to customer needs independently.
QUALIFYING LEADS Evaluating a prospect's needs and assessing whether their solution could effectively address that.	Using an interview script to actively listen to a business's needs to understand if the company solution is viable.	Guide the conversation, surface a prospect's needs and help them see the solution as a possible option on their own.	Guiding more fluidly and more accurately assessing the prospect's needs, moving qualifying leads to the top, mindful of body posture and non verbal cues, nuances of language, and pauses.

INFORMATION TECHNOLOGY

BUSINESS DEVELOPMENT REPRESENTATIVE

SALARY RANGE	**Entry Level:** Base Salary $40,000 -$70,000, On-target earnings $90,000 - $110,000	**Advanced Level:** Base Salary $50,000 -$86,000, On-target earnings $110,000 - $135,000
TECHNOLOGIES	• Customer relationship management CRM software • Data base user interface and query software • Enterprise resource planning ERP software • Video conferencing software • Word processing software	
CREDENTIALS	**Required:** High School Diploma **Preferred:** Associate's or Bachelor's Degree	
WORK EXPERIENCE	**Entry Level:** 0 years	
OTHER JOB TITLES/ROLES	Sales Development Representative, Sales Representatives, Account Representative, Inside Salesperson	

BUSINESS DEVELOPMENT REPRESENTATIVE PATHWAY

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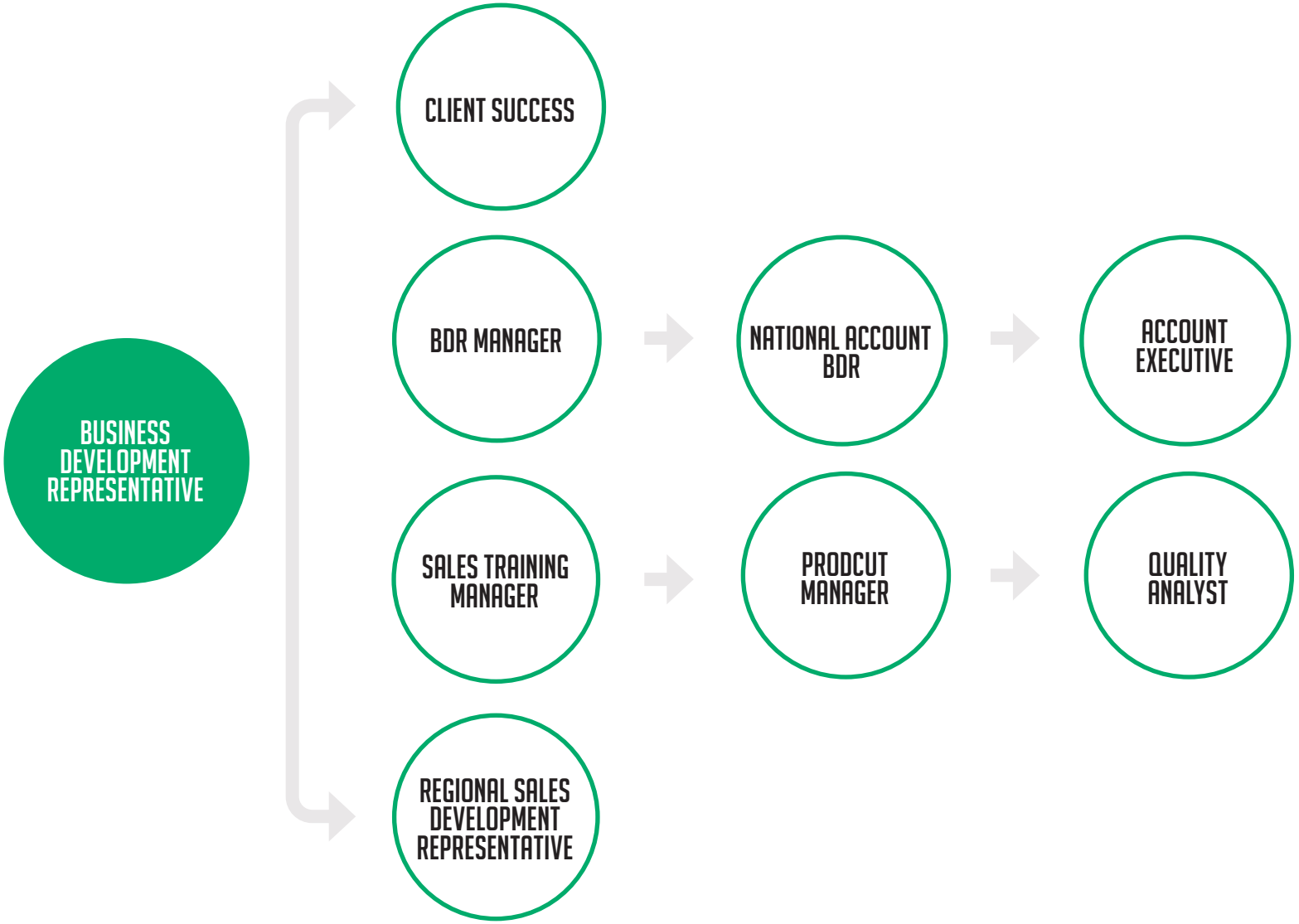

INFORMATION TECHNOLOGY

SALESFORCE ADMINISTRATOR

JOB DESCRIPTION

Help users to get the most out of Salesforce technology by working with stakeholders to define system requirements, customize the platform, and stay updated on the platform's new tools, capabilities, and updates as well as third party solutions.

KEY FOUNDATIONAL COMPETENCIES

Project Management, Business Analysis, Stakeholder Engagement, End User Enablement, Lifelong Learning, Adaptability, Initiative, Dependability, Basic Computer Competencies, Critical & Analytical Thinking, Problem Solving & Decision Marking, Teamwork, Communication (written/verbal)

OCCUPATIONAL COMPETENCY	NOVICE	EMERGING	PROFICIENT
SALESFORCE PLATFORM Knowledge of the Salesforce Platform, understanding use cases for the platform, Salesforce architecture, and navigating setup, power up with AppExchange.	With coaching and support, describe the capabilities of activity management, Salesforce Mobile App, features of Chatter, and identify use cases for AppExchange applications.	With minimal errors, describe the capabilities of activity management, Salesforce Mobile App, features of Chatter, and identify use cases for AppExchange applications.	Independently describe the capabilities of activity management, Salesforce Mobile App, features of Chatter, and identify use cases for AppExchange applications.
DATA MANAGEMENT Create processes to ensure data in Salesforce is managed correctly.	With coaching and support, create processes to ensure data in Salesforce is managed correctly.	With minimal errors, create processes to ensure data in Salesforce is managed correctly.	Independently, create processes to ensure data in Salesforce is managed correctly.
DATA ANALYSIS Provide reporting on a regular basis to help users and executives gain insights and make decisions from Salesforce data.	With coaching and support, provide reporting on a regular basis to help users and executives gain insights and make decisions from Salesforce data.	With minimal errors, provide reporting on a regular basis to help users and executives gain insights and make decisions from Salesforce data.	Independently, provide reporting on a regular basis to help users and executives gain insights and make decisions from Salesforce data.
CHANGE MANAGEMENT Manage changes to business processes, technology, and people within Salesforce.	With coaching and support, manage changes to business processes, technology, and people within Salesforce.	With minimal errors, manage changes to business processes, technology, and people within Salesforce.	Independently, manage changes to business processes, technology, and people within Salesforce.

INFORMATION TECHNOLOGY

SALESFORCE ADMINISTRATOR

OCCUPATIONAL COMPETENCY	NOVICE	EMERGING	PROFICIENT
PROCESS AUTOMATION Create, maintain, and enhance automated business processes.	With coaching and support, create, maintain, and enhance automated business processes.	With minimal errors, create, maintain, and enhance automated business processes.	Independently, create, maintain, and enhance automated business processes.
PRODUCT MANAGEMENT Manage the end-to-end implementation of Salesforce, including the overall strategy and day-to-day activities involved in administering Salesforce.	With coaching and support, manage the end-to-end implementation of Salesforce, including the overall strategy and day-to-day activities involved in administering Salesforce.	With minimal errors, manage the end-to-end implementation of Salesforce, including the overall strategy and day-to-day activities involved in administering Salesforce.	Independently, manage the end-to-end implementation of Salesforce, including the overall strategy and day-to-day activities involved in administering Salesforce.
SECURITY MANAGEMENT Proactively set up processes to manage and protect customer and business data.	With coaching and support, proactively set up processes to manage and protect customer and business data.	With minimal errors, proactively set up processes to manage and protect customer and business data.	Independently, proactively set up processes to manage and protect customer and business data.

INFORMATION TECHNOLOGY

SALESFORCE ADMINISTRATOR

SALARY RANGE	**Entry Level:** $64,000 - $87,000	**Advanced Level:** $87,000 - $105,000
TECHNOLOGIES	• Salesforce Platform • Email Automation • Accounting Software • Document Management Software	
CREDENTIALS	**Sometimes Required:** Salesforce Certified Associate **Required:** Salesforce Administrator Certification	
WORK EXPERIENCE	**Entry Level:** Salesforce Work Experience, targeting 0-6 months paid Salesforce experience	
OTHER JOB TITLES/ROLES	CRM Manager, CRM Product Owner, System Administrator	

SALESFORCE ADMINISTRATOR PATHWAY

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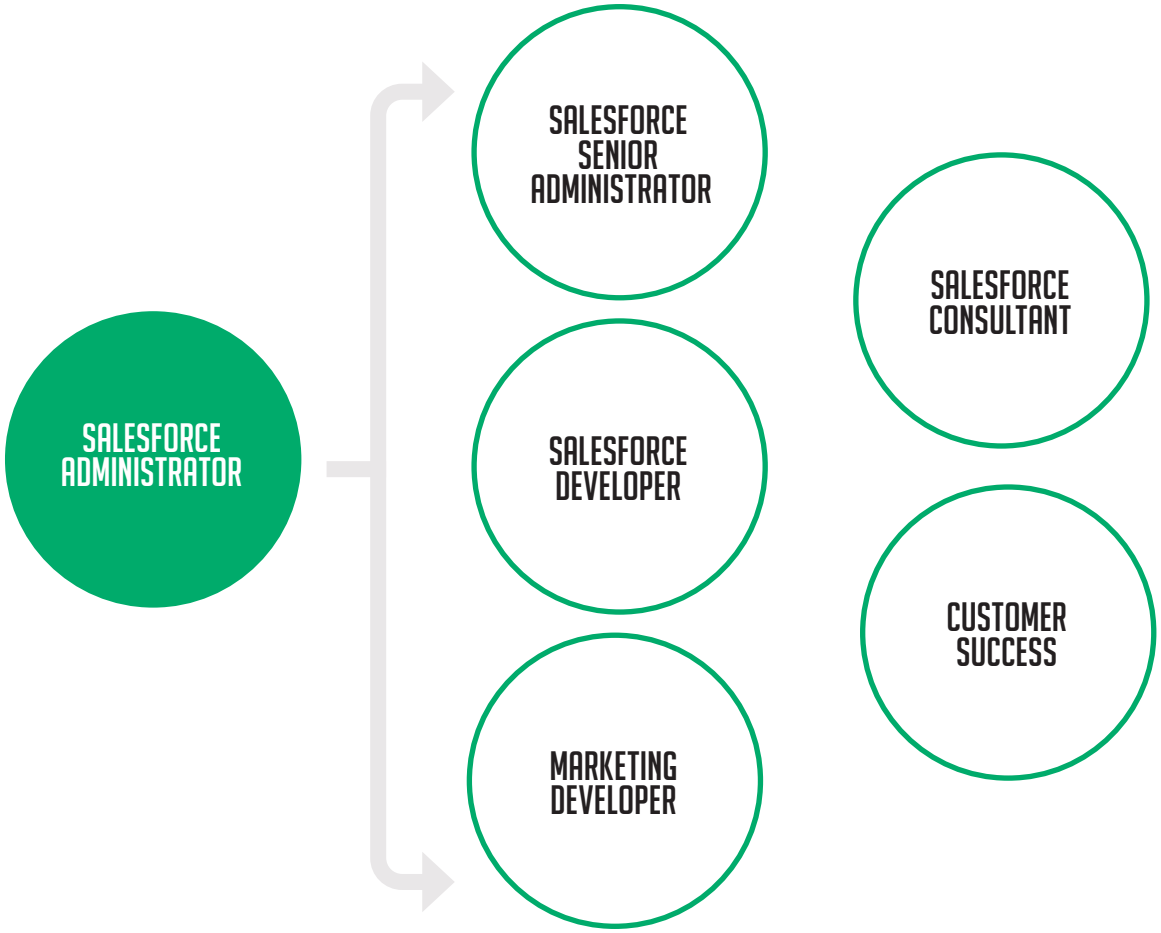

INFORMATION TECHNOLOGY

CLOUD ADMINISTRATOR

JOB DESCRIPTION

Analyze, test, troubleshoot, and evaluate the cloud systems landscape; understanding what resources are available; utilize IAM (Identity and Access Management) controls allowing systems or people to access cloud environment; optimizing the configuration and performance of existing resources and services, recommending new ones to improve efficiency with minimal interruption.

KEY FOUNDATIONAL COMPETENCIES

Adaptability, Integrity, Initiative, Communication, Critical & Analytical Thinking, Science & Technology, Problem Solving & Decision Making, Teamwork, Detail Orientation, Leadership

OCCUPATIONAL COMPETENCY	NOVICE	EMERGING	PROFICIENT
AGILE METHODOLOGY Type of project management process where demands and solutions evolve through the collaborative effort of self-organizing and cross-functional teams and their customers.	Learn with teams and discover project solutions, delivery, and current processes with coaching and supports.	Introduce forecasting and time estimation, earn independence in novice tasks, understand cloud landscape to identify items that need improvement.	Drive change, create additional tasks, scope out and find the correct team members to work with to accomplish the tasks from start to end, familiar and create project plans and possibly, report to leadership strategic ways to improve systems.
CLOUD SERVICES PLATFORM Wide range of resources delivered on demand to customers over the Internet managed by cloud computing providers.	Understand and evaluate cloud systems landscape.	Deploy cloud systems and support clients in deploying those resources and services in cloud, expanding cloud systems footprints under direction.	Produce improvements to existing systems and able to estimate/suggest changes to existing cloud systems landscape.
AUTOMATION Use of technology that performs tasks with reduced human assistance in order to unite cloud management processes (e.g. Kubernetes, Docker).	Learn what the automation work flow is and what it currently does.	Learn how to modify, improve, and/or build automation.	Propose automation solutions to improve the cloud system landscape.
SOFTWARE ENGINEERING Process of analyzing user requirements and then designing, building, testing, and releasing software application which will satisfy those requirements.	Learn how to build software for client, what their processes are, how they build software there, with coaches or partner with other engineers, define requirements, learning how to translate user needs into software application with coaches and/or partner with other engineers.	Create software on your own, with with coaches and/or partner with other engineers, drive requirements from user needs, follow software development pipeline (design, build, test, release).	Identify areas that need improvement as the business/customer needs change, create the project management line to support the changes needed from a software perspective.

INFORMATION TECHNOLOGY

CLOUD ADMINISTRATOR

OCCUPATIONAL COMPETENCY	NOVICE	EMERGING	PROFICIENT
CORE CODING LANGUAGES Uses programming and scripting languages to create automations, integrations, and customizations; Utilizing core coding languages (e.g., Java, C#, Objective C, JavaScript, Swift, Python) on a cloud stack; integrates data storage, libraries, methods, interfaces, data serialization (e.g. YAML, JSON).	Codes simple software & application tasks or routines in support of software & application configuration work. May create simple web pages. Able to create and execute unit tests. Use programming and scripting languages to create automations, integrations, and customizations under supervision.	Developing programs and configurations to be used in production environments. Contributes to research and development processes. Use programming and scripting languages to create automations, integrations, and customizations independently.	Defining and driving forward a standard language and tools for others use it in the same manner.
DEVELOPER TOOLS Understanding and use of DevOps tooling for coding, deploying, and testing (e.g. Jenkins, Chef, Terraform, Ansible).	Learn and practice the DevOps life cycle.	Deploy the full DevOps life cycle.	Discover, plan, and implement the DevOps life cycle.
CODE REPOSITORIES Understanding and use of software collaborative tooling to accomplish tasks and projects (e.g. GitHub, JIRA, GitLab, BitBucket, Azure DevOps Repos).	Learn the company's software they use for storing code, how to interact locally and remotely, code versioning, and check-in/ check-out.	Create new repositories, update existing repositories, and automate remote code interactions.	Drive and manage the repository tools of choice, complete code reviews of code submissions, maintain the repository state and resiliency.

INFORMATION TECHNOLOGY

CLOUD ADMINISTRATOR

SALARY RANGE	**Entry Level:** $55,000 - $80,000	**Advanced Level:** $70,000 - $100,000
TECHNOLOGIES	• Configuration management software • Network monitoring software • Presentation software • Transaction security and virus protection software • Automated Management System Infrastructure • Resource Operations Tooling • Patching Software • Network Monitoring Services • Technical Design Presentation • Vulnerability protection software	
WORK EXPERIENCE	**Entry Level:** 0-6 months	
CREDENTIALS	**Required:** High School Diploma **Sometimes Required:** Associate's Degree, Bachelor's Degree	**Optional/Dependent on Specialty - Certifications:** Amazon Web Services Cloud Practitioner Certification (AWS CPC), AWS Solutions Architect, AWS SysOps, AWS DevOps, Azure Fundamentals (900), Azure AZ-104, Microsoft Azure Administrator, Google Cloud Platform, Oracle Cloud Infrastructure
OTHER JOB TITLES/ROLES	Cloud Developer, Cloud Practitioner, Cloud Associate, Cloud Project Leader, Cloud Systems Leader	

CLOUD ADMINISTRATOR PATHWAY

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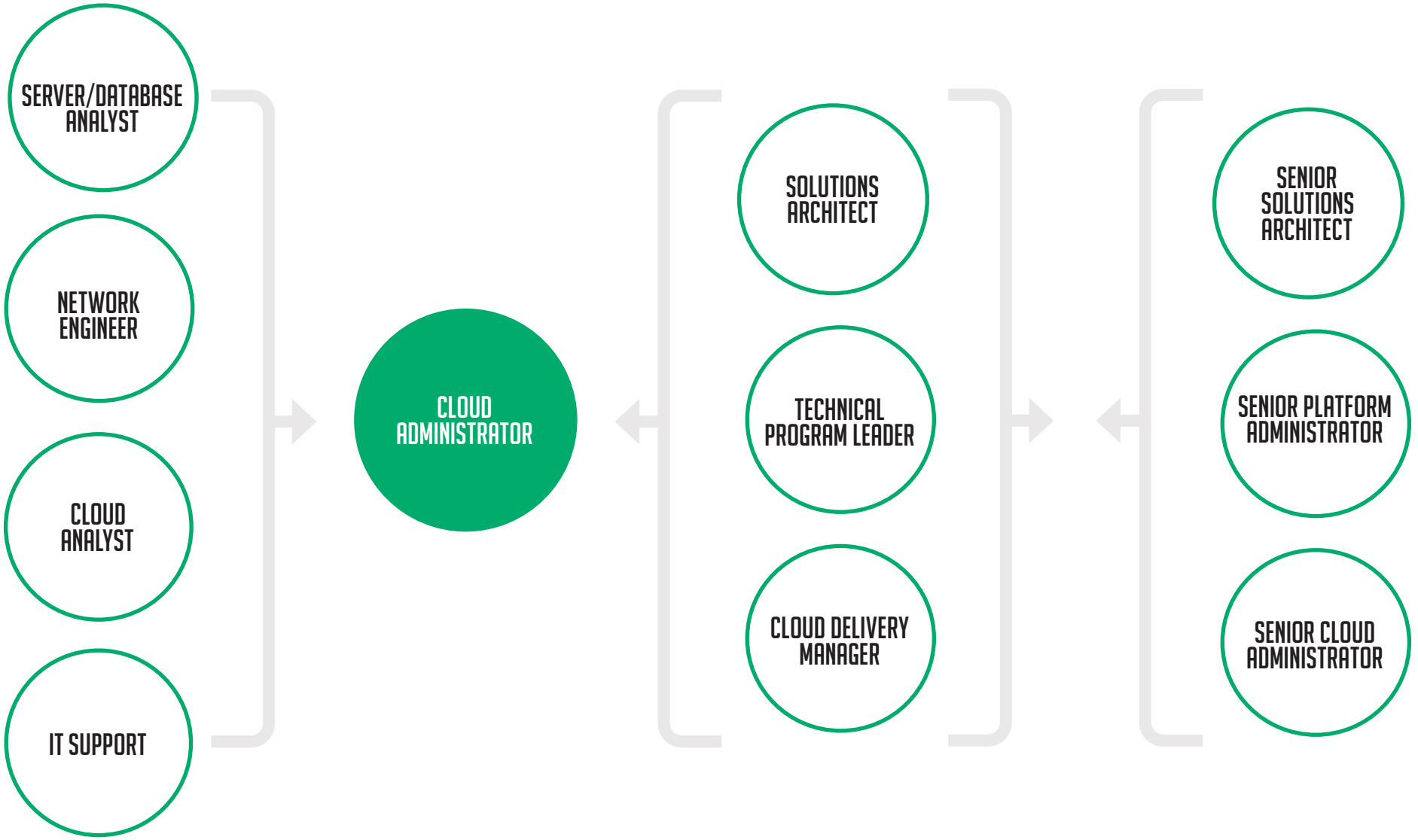

ABOUT TECHPOINT

TechPoint is the nucleus and turbocharger for Indiana's tech ecosystem. It is seeking collective, community support to address an imperative to inclusively grow Indiana's tech economy to 230,000 workers by 2030 to transform the economy of Indiana and create sustainable prosperity and quality of life for our citizens and future generations.

TechPoint serves the Indiana tech ecosystem by attracting talent (Xtern, for example), growing companies (Scale-Up Initiative, for example), and building community (Mira Awards and TechPointIndex.com, for example). TechPoint is an initiative of the Central Indiana Corporate Partnership (CICP), an organization committed to advancing the entire Central Indiana region.

TECHPOINT

ABOUT EMPLOYINDY

EmployIndy guides the local workforce ecosystem and makes strategic investments to remove barriers to quality employment for underserved and underrepresented residents. Our vision is for all Marion County residents to have access to services and training necessary to secure a livable wage and grow in a career that meets employer demand for talent. As the workforce development board for Marion County, guided by 24 business, civic, education, and nonprofit community leaders, EmployIndy invests $25 million in public, private and philanthropic funds for both youth and adults annually.

EmployIndy
GUIDING MARION COUNTY'S WORKFORCE

ABOUT ASCEND

Ascend Indiana is committed to making Indiana a place of economic opportunity for all. Ascend connects job seekers to excellent and promising career opportunities through an innovative job-matching platform, the Ascend Network; catalyzes partnerships and provides consulting services to meet high-demand workforce needs through Ascend Services; and conducts research Ascend Insights to enable systems-level change that positively impacts individuals throughout the state.

Ascend
INDIANA

ABOUT THE COUNCIL FOR ADULT AND EXPERIENTIAL LEARNING

Recognizing that adult learners are the backbone of the U.S. economy, CAEL helps forge a clear, viable connection between education and career success, providing solutions that promote sustainable and equitable economic growth. CAEL opens doors to opportunity in collaboration with workforce and economic developers; postsecondary educators; employers and industry groups; foundations and other mission-aligned organizations. By engaging with these stakeholders, we foster a culture of innovative, lifelong learning that helps individuals and their communities thrive. A membership organization established in 1974, CAEL is a part of Strada Collaborative, a mission-driven nonprofit. Learn more at cael.org and stradacollaborative.org.

cael
Link Learning and Work

THANK YOU

Thanks to the employers for their time and efforts in creating these maps and pathways!

AUNALYTICS
BCFORWARD
BOYCE FORMS-SYSTEMS
CUMMINS
DMI
ELI LILLY AND COMPANY
FIVE STAR TECHNOLOGY SOLUTIONS
GENESYS
HC1
HIGH ALPHA
INDIANA OFFICE OF TECHNOLOGY
INFOSYS
MATRIX INTEGRATION
NAVAL SURFACE WARFARE CENTER, CRANE DIVISION
PARKVIEW HEALTH
RESULTANT
SALESFORCE
SEP
SPRINGBUK
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