Course Syllabus: Business analysis fundamentals

**Introduction**

Welcome to the Business Analysis Fundamentals course, where you can learn how to develop your business analytical skills. The course provides a comprehensive overview of essential concepts and skills for both beginners and experienced professionals seeking to enhance their skills in business analysis.

Business Analysis Fundamentals is part of a program that introduces you to the essentials of analysis in business and prepares you to operate in the role of a business analyst.

In this course, you’ll learn how to use data analysis to inform business decisions that lead to achievable solutions.

By successfully completing the courses in this program, you will earn a Coursera certificate. This certificate helps you get job-ready and prepares you to pursue a career in this role.

After completing this course, you’ll be able to:

* Describe the basic concepts and principles of business analysis.
* Explain the role of a business analyst within an organization.
* Identify the root cause of a business problem and apply qualitative and quantitative business analysis techniques to identify and address business problems.
* Identify and analyze the stakeholders in a business project.
* Learn the difference between project objectives and deliverables.
* Learn how to identify and communicate project risks.

**Industry Expertise**

This course is designed and built by subject-matter and industry experts in the field. It’s created to equip you with theoretical and practical knowledge and real-life problem-solving skills so that you can be successful in an entry-level job.

In developing this course, we carefully studied the job requirements for this role. By analyzing job postings and consulting with industry experts, we crafted a course that covers the essential skills needed in today's business environment. You can trust that the course will prepare you with practical knowledge that aligns with market demands, preparing you for your future career.

Throughout your learning, you'll be able to apply your knowledge through a variety of interactive activities and real-world examples. You'll also be able to assess your progress with knowledge checks and a practice exam.. Best of luck as you continue to pursue your business analysis career.

**Prerequisites**

Whether you’re new to business analytics or are hoping to move into the analytics field, this learning journey may be just what you need to achieve your goals. **Previous experience in data analysis or related areas is not necessary to pursue this certification.**  All you need is familiarity with using computers. It’ll also help if you enjoy questioning information and using the answers to inform others or plan actions!  Familiarity with Microsoft apps is not a requirement but would be beneficial.

Let’s take a moment to outline what you’ll cover as you progress through this course

**Week 1: Introduction to Business Analysis**

After a brief welcome to the course, you’ll begin by examining the role of a Business Analyst in an organization, followed by an introduction to what’s involved in the work life of a Business Analyst. You’ll then explore techniques to recognize and understand business problems and finish the week by overviewing the analysis steps involved in an end-to-end business process improvement project of a fictional business.

After completing the items, you'll be able to:

* Identify the essential ideas and rules behind business analysis.
* Describe the core concepts and practical methods utilized in this field.
* Discuss the important responsibilities and tasks associated with the role of business analysis.

**Week 2: Investigating the Business Problem**

In week two, you’ll be introduced to the skills needed to recognize and understand business problems. You'll learn ways to identify and analyze problems that lead to possible solutions by using a problem-solving framework. This week includes a comprehensive introduction to researching by quantitative, qualitative and hybrid methods

After completing this week's items, you'll be able to:

* Identify and recognize business problems effectively.
* Describe methods for carefully analyzing these problems.
* Discuss how to suggest effective solutions and contribute to making informed decisions based on your analysis.

**Week 3: Working with Stakeholders**

Identifying stakeholders is a key part of any project, and you’ll explore just what's involved in determining stakeholder roles and importance. Working your way through this week, you’ll discover how to assess the people involved in a business project and learn how to identify their interests, and expectations, and evaluate their influence on the project.

After completing your studies this week, you'll be able to:

* Identify the various stakeholders involved in a business project.
* Discuss their interests, expectations, and level of influence on the project.
* Describe strategies for understanding and managing stakeholders effectively throughout the project lifecycle.

**Week 4: Final Project and Assessment: Business Analysis Fundamentals**

In the final week, it's your chance to use all your new skills! To summarize your learning in this course, you’ll recap what you’ve learned. Following this revision, you’ll have time to reflect on the key learning points of the course as you answer questions in the course assessment and interact with the final hands-on business analysis project.

After completing this week's work, you'll be able to:

* Synthesize the skills from this course by completing a graded assessment
* Reflect on this course's content and on the learning path that lies ahead.

**Conclusion**

This course will take you one step closer to your career and educational goals. It provides a comprehensive overview of essential concepts and skills for both beginners and experienced professionals seeking to enhance their skills in business analysis. Emphasizing the role's significance within organizational frameworks, the course covers core principles, practical methods, and responsibilities associated with business analysis. It develops skills in recognizing and understanding business problems, employing analytical methods to propose effective solutions, and gaining insights into stakeholder identification and analysis.

c.Day in the life of a business analyst:

Generative AI Terminology

**Introduction**

Generative AI is a dynamic and rapidly evolving field within artificial intelligence. It focuses on developing algorithms that can generate novel content, such as text, images, audio, or video, from existing data. Understanding the terminology in this domain clarifies how these technologies function and sheds light on their implications for various industries. In this reading, you will explore an extensive glossary of terms pertinent to generative AI, examining foundational concepts, advanced techniques, and their practical applications.

**Artificial intelligence**

Artificial intelligence (AI) is the field of computing focused on creating systems capable of performing tasks that would typically require human intelligence. These tasks include reasoning, learning, problem-solving, perception, language understanding, and even the ability to move and manipulate objects. AI technologies leverage algorithms and dynamic computing environments to enable machines to solve complex problems, adapt to new situations, and learn from past experiences. Central to AI is machine learning (ML), where algorithms detect patterns and infer probabilities from data, allowing the machine to improve its performance over time. AI systems can range from simple, rule-based algorithms to complex neural networks modeled on the human brain.

**Machine learning**

Machine learning (ML) is a critical domain within artificial intelligence that emphasizes the development of algorithms and statistical models that enable computers to perform specific tasks without explicit instructions. Instead, these systems learn and make predictions or decisions based on data. Here's a more technical breakdown:

1. **Types of learning**:
   * **Supervised learning**: Algorithms learn from labeled training data, aiming to predict outcomes for new inputs.
   * **Unsupervised learning**: Algorithms identify patterns in data without needing labeled responses, often used for clustering and association.
   * **Reinforcement learning**: Models learn to make sequences of decisions by receiving feedback on the actions' effectiveness.
2. **Algorithms and techniques**:
   * Common algorithms include linear regression, decision trees, and neural networks.
   * Advanced techniques involve deep learning, which uses layered neural networks to analyze various levels of data features.
3. **Data handling and processing**:
   * Effective machine learning requires robust data preprocessing, including normalization, handling missing values, and feature selection to improve model accuracy.
4. **Performance evaluation**:
   * ML models are evaluated based on metrics such as accuracy, precision, recall, and the area under the receiver operating characteristic (ROC) curve, ensuring that they perform well on unseen data.
5. **Application areas**:
   * ML is applied in various fields such as finance for algorithmic trading, healthcare for predictive diagnostics, and autonomous vehicles for navigation systems.

**Deep learning**

Deep learning (DL) is an advanced branch of ML that uses artificial neural networks with multiple layers, known as deep neural networks. These networks are capable of learning from large amounts of unstructured data. DL models automatically extract and learn features at multiple levels of abstraction, enabling the system to learn complex patterns in large datasets. The learning process can be:

* Supervised - where the model is trained with labeled data
* Semi-supervised - which uses a mix of labeled and unlabeled data
* Unsupervised - which relies solely on unlabeled data

This technique is particularly effective in areas such as image recognition, natural language processing (NLP), and speech recognition, where conventional machine-learning techniques may fall short due to the data structures' complexity. DL has propelled advancements in generative AI, enabling the creation of sophisticated models like generative adversarial networks (GANs) that can generate new data instances that mimic real data.

**Neural networks**

Neural networks (NN) are a cornerstone of AI. They are particularly effective in pattern recognition and data interpretation tasks, which they achieve through a structure inspired by the human brain. Comprising layers of interconnected nodes, or neurons, each with its weights and biases, NN processes input data through these nodes. The connections between nodes represent synapses and are weighted according to their importance. As data passes through each layer, the network adjusts the weights, which is how learning occurs. This structure enables neural networks to learn from vast amounts of data to make decisions, classify data, or predict outcomes with high accuracy. NN are particularly crucial in fields such as computer vision, speech recognition, and NLP where they can recognize complex patterns and nuances better than traditional algorithms. The training process involves techniques such as backpropagation, where the model learns to minimize errors by adjusting weights to produce the most accurate outputs possible.

**Generative adversarial networks (GAN)**

GANs are a sophisticated class of AI algorithms used in ML, characterized by their unique structure of two competing NNs: the generator and the discriminator. The generator is tasked with creating data that is indistinguishable from genuine data, while the discriminator evaluates whether the generated data is real or fake. This adversarial process, much like a teacher-student dynamic, continuously improves the accuracy of the generated outputs. The training involves the discriminator learning to better distinguish between real and generated data, while the generator strives to produce increasingly convincing data, enhancing its ability to deceive the discriminator. This setup not only helps in generating new data samples but is also useful in unsupervised learning, semi-supervised learning, and reinforcement learning. GANs are particularly renowned for their applications in image generation, video creation, and voice synthesis, where they can produce highly realistic outputs.

**Natural language processing (NLP)**

NLP is an advanced area of AI that focuses on the interaction between computers and humans through natural language. The goal of NLP is to read, decipher, understand, and make sense of human languages in a manner that is valuable. It involves several disciplines, including computer science and computational linguistics, in an effort to bridge the gap between human communication and computer understanding. Key techniques in NLP include syntax tree parsing, entity recognition, and sentiment analysis, among others. These techniques help computers to process and analyze large amounts of natural language data. NLP is used in a variety of applications, such as automated chatbots, translation services, email filtering, and voice-activated global position systems (GPS). Each application requires the computer to understand the input provided by humans, process that data in a meaningful way, and if necessary, respond in a language that humans understand.

**Transformers**

Transformers represent a significant advancement in deep learning, particularly in the field of NLP. Introduced by Google researchers in the seminal 2017 paper "Attention is All You Need", transformers use a mechanism known as self-attention to weigh the importance of each word in a sentence, regardless of its position. Unlike previous models that processed data sequentially, transformers process all words or tokens in parallel, which significantly increases efficiency and performance on tasks that require understanding context over long distances within text. This architecture avoids recurrence and convolutions entirely, relying instead on stacked self-attention and point-wise, fully connected layers for both the encoder and the decoder components. This design allows for more scalable learning and has been fundamental in developing models that achieve state-of-the-art results on a variety of NLP tasks, including machine translation, text summarization, and sentiment analysis. The transformer's ability to handle sequential data extends beyond text, making it versatile in other domains like image processing and even music generation.

**Generative pre-trained transformers**

Generative pre-trained transformers (GPT) are state-of-the-art language models developed by OpenAI that use DL techniques, specifically the transformer architecture, for natural language understanding and generation. These models are first pre-trained on a diverse range of internet text to develop a broad understanding of language structure and context. The pre-training involves unsupervised learning, where the model predicts the next word in a sentence without human-labeled corrections. This allows GPT models to generate coherent and contextually appropriate text sequences based on the prompts they are given. Once pre-trained, GPT models can be fine-tuned on specific tasks such as translation, question-answering, and summarization, enhancing their applicability across various domains. Their ability to generate human-like text and perform language-based tasks has implications across fields such as AI-assisted writing, conversational agents, and automated content creation. Each successive version of GPT has been larger and more complex, with GPT-4, the latest iteration, containing 175 billion parameters, which significantly advances its learning and generative capabilities.

**Tokenization, Word2vec, and BERT**

Tokenization in NLP involves splitting text into smaller units known as tokens, which can be words, characters, or subwords. This step is crucial for preparing text for processing with various NLP models, as it standardizes the initial input into manageable pieces for algorithms to process. Word2vec, developed by researchers at Google, is a technique that embeds words into numerical vectors using shallow, two-layer NNs. The models are trained to reconstruct the linguistic contexts of words, thereby capturing the relationships and multiple degrees of similarity among them. Meanwhile, Bidirectional Encoder Representations from Transformers (BERT) represents a significant advancement in pre-training language representations. Developed also by Google, BERT incorporates a transformer architecture that processes words in relation to all the other words in a sentence, rather than one-by-one in order. This allows BERT to capture the full context of a word based on all its surroundings, leading to a deeper understanding of language nuances. BERT's ability to handle context from both directions makes it exceptionally powerful for tasks where context is crucial, such as question answering and sentiment analysis.

**Conclusion**

In this reading, you examined the foundational concepts of generative AI. You learned about ML, DL, and NLP, and unraveled their roles and applications in various industries. Additionally, you delved into emerging advancements like GANs, transformers, and GPT, recognizing their pivotal role in generating innovative content.

Understanding these foundational terms in generative AI not only enriches the conversation among tech enthusiasts but also empowers professionals to leverage this technology in various industries effectively. As AI continues to advance, keeping abreast of terminologies and concepts will provide the necessary tools to navigate this dynamic field successfully.

Tasks of a Business Analyst

**Introduction**

The responsibilities and tasks associated with the role of a Business Analyst (BA) can vary greatly depending on the organization, industry, technology, and project type.

A Business Analyst often acts as an investigator, analyzing problems, understanding dependencies, and evaluating solutions to pinpoint risks and dependencies that may impact or jeopardize the project's success.

This multifaceted role requires adaptability, analytical ability, and effective communication skills. Let’s examine the details of the ten key BA responsibilities and everyday tasks.

**1: Problem identification**

Understanding the business need and the root cause of the problem is the key responsibility of a business analyst. A well-known American businessman and educator, Stephen Covey, once said: “There is no point in finding a better chainsaw if you are cutting trees in the wrong jungle.”

Sometimes, what we see as a problem is not the real problem, but merely a symptom. Careful examination and clear communication, can help you uncover the problem behind the apparent problem and get to the root of the issue.

**2: Stakeholder management**

People or groups who are affected, or could be affected by the project are known as project stakeholders. This could include colleagues, staff, suppliers, or customers. Stakeholders may have significant influence over project outcomes. Therefore careful stakeholder management is one of the critical responsibilities of a Business Analyst. As a BA you must understand the ideas, priorities and wishes of the stakeholders before you can recommend a solution or implement any business changes.

BAs also need to facilitate seamless communication between different departments,  synthesize diverse perspectives into cohesive project objectives, and ensure alignment with organizational goals.

**3: Risk management**

In the complex and often unpredictable business landscape risks are everywhere. From strategic misalignment through scope creep (an increase in project scope) to resource shortage or technological constraints, BAs serve as vigilant project guardians, identifying, assessing, and mitigating risks that may impede project success. They also may contribute to creating risk management plans, monitoring and reporting on risk status, and adapting the solution to safeguard project success and business outcomes.

**4: Process analysis and process improvement**

As a Business Analyst (BA) you will play a crucial role in identifying business problems and improving overall business performance. Your responsibilities may include:

* Identifying process inefficiencies.
* Gathering and documenting business requirements.
* Proposing ideas for process enhancement.

BAs collaborate with stakeholders to understand their needs and objectives and create process models and flowcharts to illustrate current and proposed workflows.

BAs also play a crucial role in implementing and monitoring process changes, ensuring continuous improvement and solution alignment with the organizational goals.

**5: Data analysis**

BAs leverage data analysis to support strategic business decisions and enhance organizational performance.

Using various data analysis and modeling techniques, statistical analysis, and data visualization, they create representations of business data structures and information flows and identify patterns and trends.

BAs are also often responsible for ensuring data quality, integrity, and compliance.

**6: Gathering and documenting requirements**

Gathering and documenting requirements is one of the fundamental tasks of a Business Analyst (BA). Employing techniques such as interviews, surveys, and workshops, BAs liaise with stakeholders to elicit and understand business needs and document business requirements.

As a BA you will  transform often vague concepts and ideas into clear, concise, and actionable requirements that subsequently guide the development of solutions.

**7: Solution evaluation and recommendations**

Armed with a thorough understanding of the business problem and the organizational needs, a Business Analyst may be called upon to propose, evaluate and recommend a suitable solution. It might involve suggesting adopting new technology, changing an existing process, or implementing a new strategy.

BAs analyze a possible solution in terms of, effectiveness and feasibility, scalability, and sustainability, employing techniques like cost-benefit analysis and risk assessment.

The results of their analysis play a key role in developing the business case, an important document which outlines the benefits, costs, and risks associated with each proposed solution. BAs then collaborate with stakeholders to make informed recommendations. It is like prescribing the right medicine to cure a business ailment.

**8: Testing and validation**

Before a proposed solution is implemented company-wide, it needs to be rigorously tested.

Business Analysts may be actively involved in creating test cases, scenarios, and acceptance criteria, ensuring that the solution meets the specified business requirements.

Techniques like user acceptance testing (UAT) involve engaging end-users to validate the solution's functionality and usability.

BAs play the role of quality controllers, making sure that the changes do not introduce new problems and that everything works seamlessly.

**9: Implementation support**

Once a solution gets the green light after being thoroughly tested, it is time to implement it.

Business Analysts may be called upon to provide support during the implementation phase, helping teams adapt to the changes within the organization. The support may involve:

* Conducting training sessions and demonstrations.
* Creating user guides.
* Writing release notes.
* Being a go-to person for any questions or issues that arise.

**10: Continuous improvement**

The world of business is ever-evolving, and so is the role of a Business Analyst. A BA can be tasked with continuously or periodically monitoring the performance of the implemented solution, gathering feedback, and identifying areas for further improvement.

The process of fine-tuning the solution is similar to tuning a musical instrument – making minor adjustments to ensure the business operates at its best.

**Conclusion**

The role of a Business Analyst is dynamic and multifaceted. Whether deciphering complex requirements, analyzing data, mitigating risks, or contributing to strategic decision-making, as a BA you are the cornerstone of effective organizational change.

They perform multiple functions and take on different responsibilities, employing qualitative and quantitative methods, adapting to different phases of projects, and ensuring solutions align with the business goals.

In this ever-evolving business landscape, the versatility of a Business Analyst remains a driving force behind innovation, efficiency, and the continuous pursuit of operational excellence.

Career progression for Business Analysts

**Introduction**

Unlike many jobs with clearly defined roles and relatively fixed career paths, a Business Analyst (BA) career journey has many entry and transition points.

In this reading, you will discover the typical career progression from a Junior BA to a Senior or Lead BA, examining the evolution of skills, responsibilities, and potential avenues for advancement.

Additionally, you will explore the opportunities in diverse specializations, such as information technology (IT) or business consulting and briefly describe less-typical career paths leading to product or project management roles.

**Beginning your career**

A Business Analyst career can have many different beginnings. You could start as a complete freshman equipped only with academic knowledge, or you could have plenty of experience as a subject matter expert in insurance, finance, or software development when you decide to enter the field of Business Analysis.

**Junior BA**

However, more often than not, you will start your career as a Junior BA. As a Junior BA, you must learn essential Business Analysis tools and techniques such as process mapping, data analysis, problem identification, and requirements gathering.

This phase is about understanding the language of business needs, learning to ask the right questions when working and communicating with stakeholders, and becoming comfortable navigating the labyrinth of organizational processes. You will typically work with a more senior BA, gaining exposure to different projects and industries.

You will need to master the art of capturing and articulating business needs, system functionalities, and process workflows. Proficiency in tools such as Microsoft Excel, Microsoft Visio, or specialized software for requirements management will become second nature.

You can compare this phase to an apprenticeship, where the emphasis is on practical application and gaining hands-on experience. It's not just about understanding the theories learned in classrooms; it's about translating them into actionable insights for the business.

**Mid-level BA role**

Depending on your prior business experience, a Junior BA can take one to three years to gain experience and transition into a mid-level role. As a more experienced BA, you will be more involved in decision-making and may be required to lead some smaller projects.

**Senior BA**

To progress to a Senior Analyst role, you must demonstrate an in-depth understanding of challenges associated with typical business processes such as product development, sales process or accounts. You should also master more advanced analytical skills, and demonstrate leadership qualities.

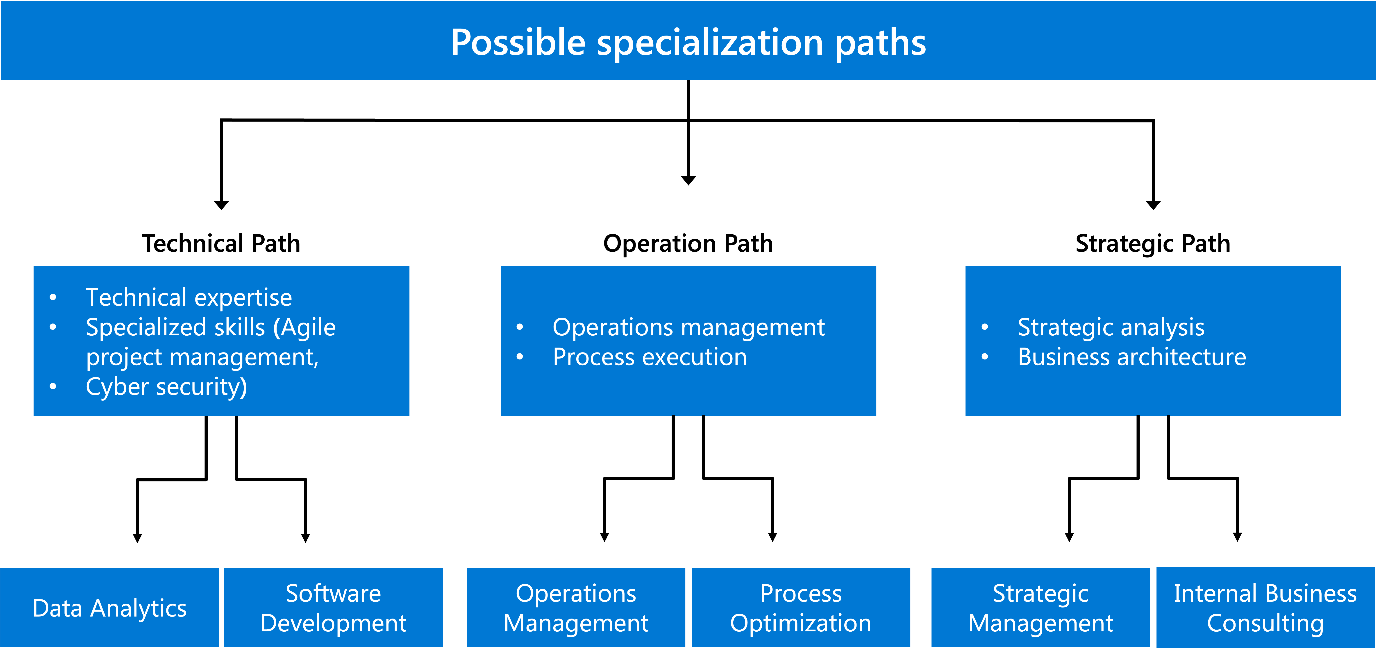
Senior BAs usually deal with more complex projects, where their ability to analyze data, identify trends, and propose strategic solutions becomes critical. Strong communication and stakeholder management skills are also crucial at this level.

The time it takes to become a senior business analyst varies greatly based on education, prior experience, and your natural abilities. Generally, it takes between 5 to 10 years of experience in the field to move from an entry-level business-related role to a senior business analyst role.

**Specializations in business analysis**

As you navigate your BA journey and gain experience, you may develop more specialized skills and preferences. Over time, you may discover specific areas that are of more interest to you or that align with your strengths. That's when the option of specialization arises, offering a thrilling opportunity for you to tailor your skillset to a specialization, allowing you to choose from three main paths:

* The technical path
* The operational path
* The strategic path

Career progression chart for Business Analysts giving possible paths for technical, operational and strategic roles

**The technical path**

By following this path you can become an IT Business Analyst or an Agile Business Analyst. This path involves working closely with application development teams, understanding technological constraints, and ensuring that business requirements align with IT capabilities.

Proficiency in methodologies and frameworks such as Agile or Scrum becomes essential in this specialization.

**The operational path**

Specializing in business processes will enable you to become an expert in optimizing workflows and enhancing efficiency. It will also allow you to progress from being a Business Process Analyst, involved in process improvement, to a Business Process Architect, someone who designs business processes.

Process improvement specialists work closely with different departments to identify bottlenecks and implement streamlined processes contributing to organizational effectiveness.

**The strategic path**

BAs can also choose to specialize in the strategic aspects of a company. Strategic path roles involve analyzing market trends, competitor landscapes, and overall industry dynamics.

The role of a Business Strategy BA includes advising leadership on long-term planning, helping organizations stay competitive in dynamic markets. Their business judgment and strategic focus can help them advance to being a senior advisor in roles with titles such as Solution Architect, Enterprise Architect, or Business Consultant.

If you choose to travel the strategic path, a Master of Business Administration (MBA) degree or a degree in a quantitative field may be helpful.

**The roads less traveled: Product and project management**

Lastly, an experienced Business Analyst can also branch out into a different field. Two possible avenues are product management and project management.

**Product management**

BAs with a keen interest in end-to-end product development often transition into product management roles. Product management involves overseeing the development, launch, and maintenance of products. The analytical skills acquired as a BA and an understanding of business needs make BAs well-suited for product management roles.

**Project management**

Project management is another alternative for Business Analysts seeking a change. BAs are already accustomed to working on project teams, and their ability to understand business and technical requirements positions them as valuable assets in project management. Skills such as scope definition, risk management, and stakeholder communication are transferable from the BA to project management roles.

**Conclusion**

Most career progression for Business Analysts is not a linear journey but rather a labyrinth with multiple paths and opportunities.

From starting as a Junior BA and building your experience, to becoming a Senior BA through exploring specializations in IT, business, or strategy, or venturing into product or project management, there are many career progression opportunities.

Regardless of the chosen specialization or whether you select a more unconventional path, the key to success lies in a commitment to continuous learning, adaptability, and a proactive approach to embracing new challenges.

As a BA you should keep updated on industry trends, emerging technologies, and evolving methodologies. Pursuing relevant certifications, attending conferences, and networking within the business analysis community can open doors to new opportunities and help you stay competitive. So, stay curious, explore your interests and, when the time comes, embrace the exciting possibilities on offer from BA career progression and specialization opportunities.