

A large, abstract graphic in the center of the slide depicts a brain. The brain is composed of a network of glowing purple and pink nodes connected by thin lines, with some nodes emitting a bright light. The overall color palette is a gradient from light pink to deep purple.

# The Data Refinery

## Cultivating the Modern Data Science Practitioner

The Art of Story Telling in the Technology Age- The Toolkit – Excel, SQL, Python, .R & Microsoft Power BI



**“Data is the new oil, but without a refinery, it cannot power the engine of the Fourth Industrial Revolution.”**

Businesses today possess massive networks of IoT devices generating unprecedented volumes of unstructured data. Yet, they lack the specific human talent required to pinpoint what is useful, detect hidden patterns, and operationalize recommendations. The Data Science Practitioner is that critical bridge.

# A Blueprint for Progressive Integration

## The Knowledge Foundation (Theory)

Building an understanding of computing, statistics, and human-centred design.

**Knowledge Modules - KM**



## The Practical Laboratory (Application)

Transitioning from theory to active doing through coding toolkits and visual analytics platforms.

**Practical Modules - PM**

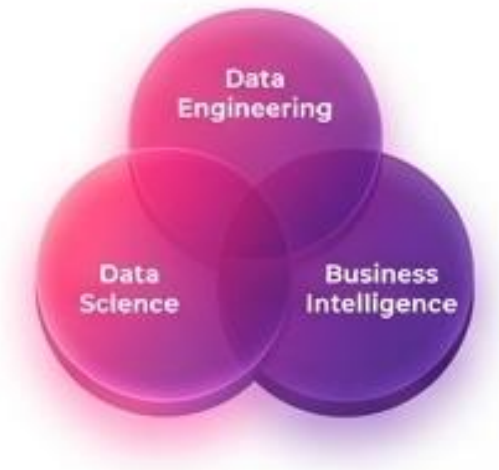


## Work Integrated Learning (Mastery)

Pressure-testing acquired skills in real or simulated enterprise environments via a Capstone project.

**Workplace Modules - WM**

# Defining the Practitioner's Domain



## Data Engineering

Focus: Systems and Architecture.

Capturing data systems and processes.

## Data Science (This Qualification)

Focus: Advanced Analytics and Manipulation.

Understanding components, processes, tools, and challenges of data science technology.

## Business Intelligence

Focus: Enterprise Strategy.

Converting data into information, turning information into knowledge, and knowledge into intelligence.

# Constructing the Technical Bedrock

## **Applied Data Analysis (KM-07, KM-08)**

Comprehensive knowledge of the three most popular programming languages in data science, data structures, and the governance of data assets.

## **Statistical Essentials (KM-06)**

The mathematics of relationship. Utilizing regression analysis to plot input/output variables and calculate the line of best fit to minimise vertical distance variances.

## **Computing Systems & Theory (KM-03, KM-04)**

The fundamental hardware and software architecture necessary for digital logic.

# The Fundamentals of Human-Centred Innovation



## The Human Rule

No matter the context, all design activity is social in nature. Innovation must always return to a human-centric point of view.



## The Ambiguity Rule

Ambiguity is inevitable and cannot be oversimplified. Experimenting at the limits of knowledge is crucial for fresh perspectives.



## The Redesign Rule

Basic human needs remain unchanged; we only redesign the means of fulfilling these needs or reaching desired outcomes.

# The Dual DNA of the Modern Practitioner



## Human-Centric

Design Thinking Workshops (PM-09) & Ethical Collaboration (PM-10). Focusing on emotional intelligence, teamwork, and enterprise accountability.

## The Core

Preparing Descriptive Analytic Reports (PM-08). Where human empathy dictates the visual narrative of the data.

## Highly Technical

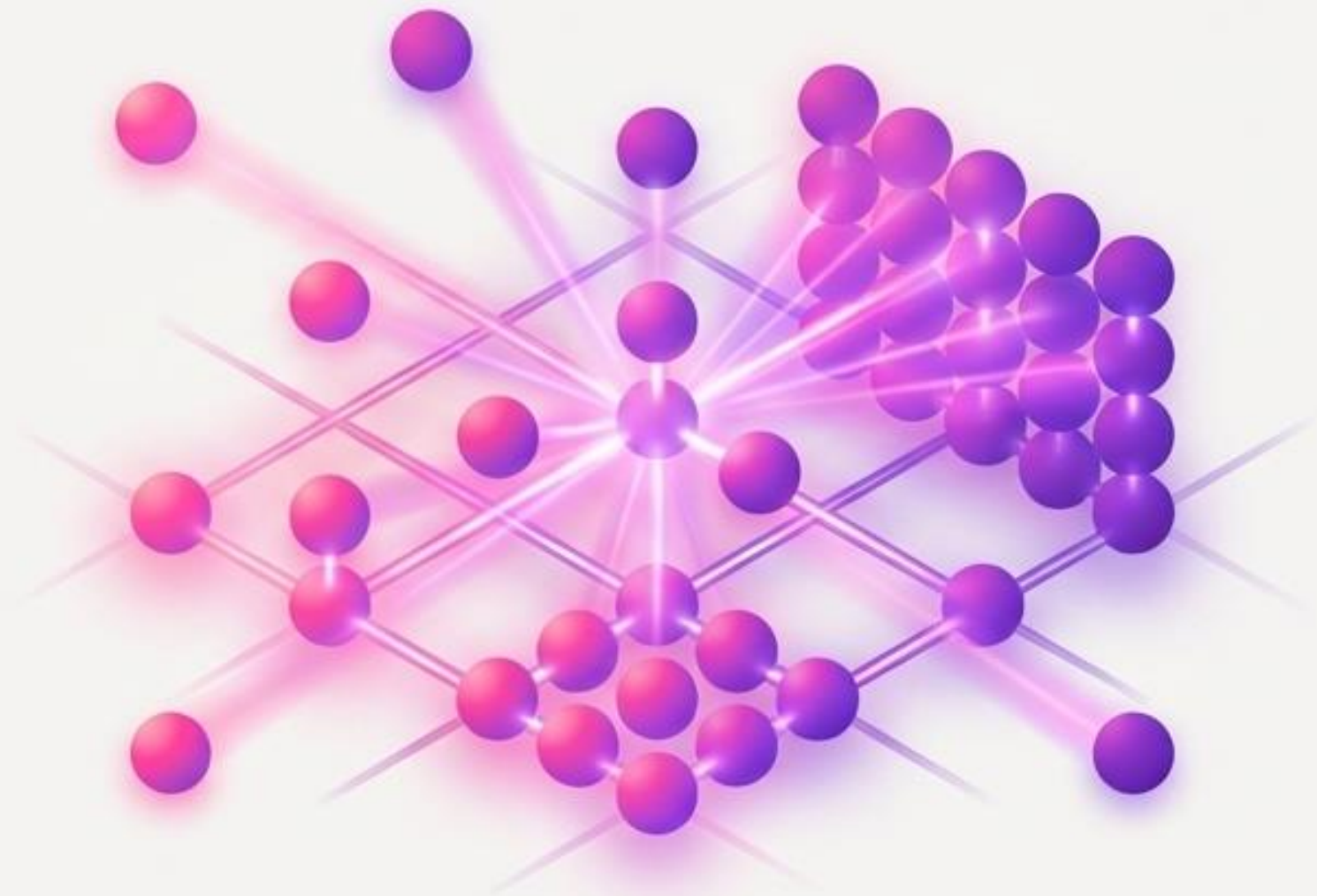
Applying Code (PM-02) & Processing Unstructured Data (PM-06). Executing rigorous logical thinking, binary/hex mathematics (PM-01), and algorithmic structures.

# Activating the Practical Laboratory

Transitioning from theoretical frameworks to active manipulation. The Practical Modules (PM-01 to PM-10) demand that learners process large amounts of structured and unstructured data, utilizing software toolkits to unearth actionable patterns.

## Key Focus Areas

- Logical and Mathematical Execution
- Statistical Data Processing
- Visual Analytics Platforms



# Designing the Analytical Narrative

**1 Know the Target Audience**  
Design choices must be based entirely on the audience viewing the information.

**2 Create a Goal**  
Establish a logical narrative. Set clear goals that must be conveyed through the infographic.

**3 Choose the Chart Type**  
A pie chart does not complement all information. Accurately matching the chart to the statistic is critical for diagnostic and prescriptive reporting.



# The Mechanics of Innovation

## Prototype & Test

Focus on neutral users, avoiding the tendency to only listen to the most vocal minority. Be genuinely open to feedback.

## Empathise

Combine observation and engagement. Ask users to physically demonstrate tasks to understand the 'why'.

## Define

Framing the right problem is the only way to create the right solution. The goal is to craft a meaningful, actionable problem statement (Point-of-View).

## Ideate

Apply creativity—the ability to think about a task in a new way to generate fresh ideas.



# Ethical Collaboration and Enterprise Analysis

## Verbal Communication

Analyzing the audience, selecting precise objectives, and presenting information clearly so stakeholders are compelled to take action.

## Teamwork & Collaboration

Working seamlessly across departments and cultures, sharing responsibilities, and supporting team well-being.

## Accountability & Professionalism

Meeting strict deadlines, upholding organizational values, and owning mistakes to learn from them.

# Distilling Theory into Experiential Mastery

Work Integrated Learning (WIL) is the bridge between academic study and industry readiness. Under competent supervision, learners apply acquired competencies in a real or simulated work environment.

Knowledge Modules

Practical Modules



1. Data  
Collection

2. Statistical  
Analysis

3. Visualisation

4. The  
Capstone

# The Four Pillars of Work Integrated Learning

## Collection & Pre-processing

Hands-on application of gathering structured and unstructured datasets, ensuring data quality and governance compliance.

## Statistical Data Analysis

Utilizing regression analysis and probability to uncover hidden trends, patterns, and insights within the raw data.

## Visualisation & Reporting

Using advanced visual analytics platforms to build descriptive, prescriptive, and diagnostic reports for enterprise stakeholders.

## The Capstone Project

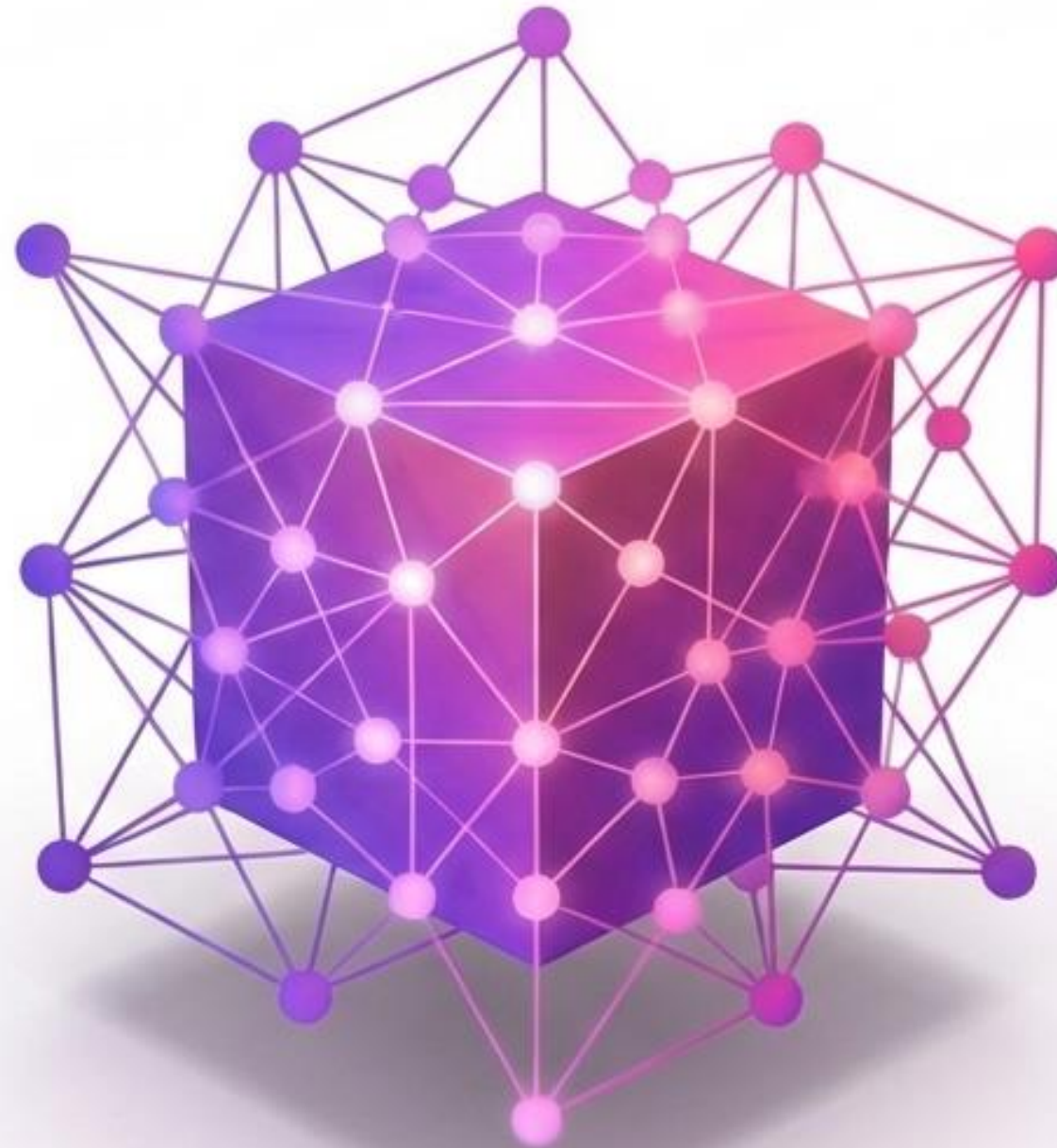
The ultimate proof of competence. An end-to-end, independent project using an appropriate software toolkit to solve a defined business problem.

# Pricing Live, Online Delivery

Qualification Name	Assessments & Moderations	External Integrated Summative Assessment	Statement of Results	Certificate of Competence QCTO	25 – 49 Participants	50 - 89 Participants	90 - 100 Participants
Occupational Certification: Data Science Practitioner ( 18 Month Qualification)	Yes	Yes	Yes	Yes	R 56,000.00	R 49 160,00	R 43 430,00

- 1) All prices are Excluding VAT.
- 2) All Prices exclude laptops, connectivity and stipends for learners.
- 3) Should cohorts or Groups exceed 100 participants: Woosh Consultants will be open to negotiating the price per person, within reason.
- 4) The prices above are firm and apply to delivery of these sessions in consecutive working days.
- 5) All prices include training delivery in a Live Online Delivery Method.
- 6) All prices include a Certificate of Competence issued by the QCTO upon participants passing the External Integrated Summative Assessment, Statements of Results issued by Woosh Consultants, all Assessments and Moderation, Access to the Master Assess platform for training administration and LMS.

# The Calibrated Data Practitioner



## Technically Rigorous

Fluent in multiple programming languages, database structures, and advanced statistical mathematics.

## Analytically Astute

Capable of turning raw, ambiguous datasets into clear, actionable enterprise intelligence.

## Human-Centred

Grounded in design thinking, ethical collaboration, and persuasive communication to drive actual business action.