5-Day Training Program: Data Visualization Techniques & Immersive Technologies

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Day 1: Foundations of Data Visualization & Storytelling

Module 1: Introduction to Data Visualization

- Importance of data visualization in decision-making
- Types of visualizations (charts, graphs, infographics, dashboards)
- Choosing the right chart for the right data
- Data-ink ratio and effective design principles

Module 2: Storytelling with Data

- What is data storytelling and why it matters
- Structuring a compelling data narrative
- Using context, contrast, and flow
- Framing insights for business decisions
- Best practices for slide storytelling

Module 3: Tools for Storytelling

- Power BI visual storytelling
- Tableau narrative dashboards
- Using Canva, Flourish, and interactive notebooks

Day 2: Visualization Problems & Pitfalls

Module 4: Common Visualization Pitfalls

- Misleading charts
- Wrong scales and axis manipulation
- Over-cluttered visuals
- Color misuse and accessibility issues
- Distortion by 3D effects

Module 5: Avoiding Interpretation Bias

- Cognitive bias in dashboards
- Anchoring, confirmation, selection bias
- Techniques to reduce bias in visualization

Module 6: Data Quality Issues

- Impact of incomplete, duplicate, and inconsistent data
- Data cleaning practices to improve visualization accuracy

Day 3: Immersive & Interactive Visualization

Module 7: Concepts of Interactivity

- Filters, slicers, drill-down, drill-through
- Dynamic parameters
- User-driven navigation patterns

Module 8: Immersive Visualization

- What makes a visualization immersive
- Dimensions: engagement, realism, narrative flow
- Examples of immersive dashboards

Module 9: Designing Interactive Experiences

- UX/UI considerations
- Creating responsive dashboards
- Building interactive story paths

Day 4: Human–Machine–Data Interfaces & New Realities

Module 10: Human-Machine-Data Interface

- Evolution from static visuals to AI-assisted analysis
- HMI layers: sensors, analytics, visualization
- Voice-enabled and gesture-driven data exploration
- Cognitive load & ergonomics in visualization design

Module 11: Workplace New Realities

- Hybrid workplace and data-driven culture
- Real-time dashboards for remote environments
- Digital collaboration tools and visualization for distributed teams
- AI copilots for visualization (Power BI Copilot, Tableau Pulse, ChatGPT Vision)

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step forward

Day 5: VR/AR, Digital Twin & Immersive Environments

Module 12: Virtual Reality (VR) & Augmented Reality (AR) Visualization

- Introduction to VR & AR technologies
- Visualizing business data in VR
- AR overlays for operational insights
- Industry use cases (manufacturing, audit, real estate, operations, aviation)

Module 13: Digital Twin

- What is a digital twin
- Components: physical object, digital model, data connection
- Real-time visualization in digital twins
- Use cases in finance, audit, risk, operations & cybersecurity

Module 14: Levels of Interactive & Immersive Environment

- Levels of immersion:
    - Non-immersive
    - Semi-immersive
    - Fully immersive
- Interaction levels: observation, manipulation, collaboration
- Designing immersive workflow environments
- Future of data visualization in virtual ecosystems

Outcome of the 5-Day Program

Participants will:

- Master data storytelling & effective visual design
- Avoid visualization mistakes & design impactful dashboards
- Build immersive & interactive dashboards
- Understand VR, AR, and digital twins for next-gen data analysis
- Apply human-machine interactions to modern workplaces