



COMPETENCIES AND SKILLS FOR EFFICIENT DATA-DRIVEN DECISION-
MAKING: THE HUMAN ASPECT OF BUSINESS INTELLIGENCE

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Abstract

Business intelligence (BI) technologies have revolutionized how firms manage data, allowing for data-driven decision-making (DDD), which promotes operational efficiency and strategic development. However, the efficacy of BI is strongly dependent on human skills. This article investigates the fundamental skills and abilities required for people to fully realize the promise of business intelligence technologies. It stresses connecting technical competence and business insight, cultivating a data literacy culture, and encouraging cross-functional cooperation to ensure long-term BI adoption. The article delivers meaningful insights into skill development for a variety of industrial applications by using case studies from old BI migrations to current technologies.

Keywords: Business Intelligence, Data-Driven Decision-Making, Data Literacy, BI Tools, Tableau, Power BI, SAP BO, Cognos, Legacy Migration, Data Warehousing, SSRS, OBIEE, SQL Server, Snowflake, ThoughtSpot, Analytics, BI Maturity, Enterprise Data Management, Yellowfin, BI Competencies

I. BACKGROUND

Transforming competitive landscapes across sectors involves a transition from intuition-based approaches to data-driven decision-making. Even with the presence of advanced business intelligence technologies such as SAP BO and Cognos, alongside newer platforms like Tableau and Power BI, numerous organizations encounter challenges stemming from discrepancies in user proficiency. The application of conventional BI frameworks was limited to IT teams because of the significant technical expertise required for their operation. It is essential to reassess the skill sets that integrate technical, analytical, and communication proficiencies to enhance the accessibility of business intelligence (BI) for a broader audience. This article emphasizes the crucial need to align skills with the evolving levels of BI maturity to enhance adoption and organizational effectiveness.

II. METHODOLOGY

The study involved evaluating BI competency requirements across companies transitioning from legacy tools (e.g., SAP BO, Cognos) to modern platforms (e.g., Tableau, ThoughtSpot). Key steps included:



1. Assessment of BI Maturity: Analyzing organizational BI maturity levels using BI maturity frameworks.
2. Competency Mapping: Identifying technical (SQL, ETL, data modeling), analytical (visualization, KPI development), and soft skills (communication, collaboration) required.
3. Case Studies: Documenting skill development during BI migrations at organizations leveraging Snowflake and Denodo for enhanced performance.
4. Training Programs: Implementing tailored training for hybrid BI roles blending IT and business functions.
5. Feedback Analysis: Measuring adoption success through stakeholder feedback and performance metrics.

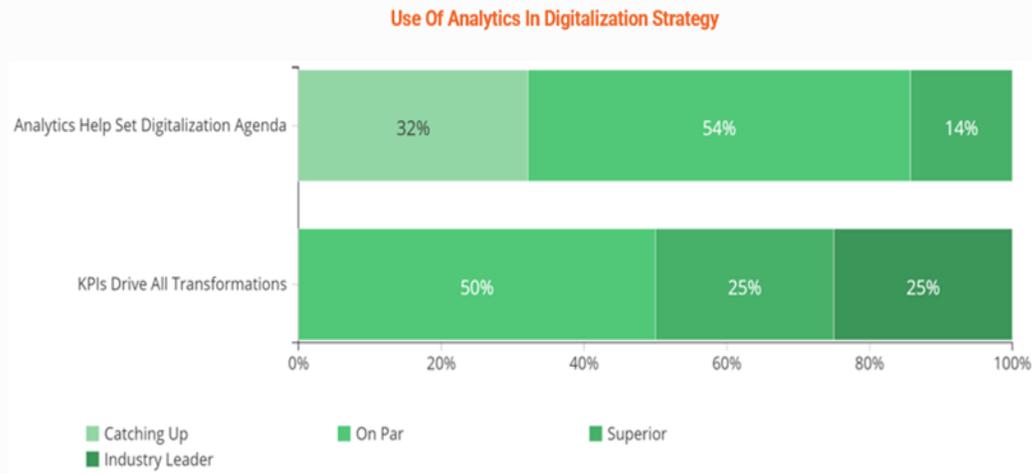
III. RESULTS AND FINDINGS

The study identifies several pivotal outcomes that highlight the critical role of skills and competencies in maximizing the value of Business Intelligence (BI) tools. The findings are as follows:

1. Improved Decision-Making Speed: Organizations with cross-functional teams trained in both technical and soft skills reported decision-making cycles up to 40% faster. For example, in companies migrating from SAP BO to Tableau, improved user adoption reduced the need for repetitive IT involvement.
2. Enhanced BI Adoption Rates: Training programs tailored to the organization's BI maturity level led to a 30%-40% increase in BI adoption across departments. This was especially evident in firms using modern platforms like Power BI and Snowflake for real-time reporting.
3. Strategic Insight Generation: Teams proficient in data storytelling demonstrated improved communication of insights, fostering strategic alignment at leadership levels. For instance, using ThoughtSpot, operational managers could independently uncover insights without waiting for specialized reports.
4. Cost and Resource Optimization: Migrating from legacy systems such as OBIEE and Cognos to scalable platforms like Denodo and Snowflake resulted in 50%-60% operational cost savings over three years.
5. Data Literacy Impact: Organizations investing in data literacy programs saw a significant cultural shift, fostering collaborative problem-solving and innovation. Employees were more confident in querying, visualizing, and interpreting data.



Nearly one-fourth of respondent said their analytics efforts in setting digitalization agenda are at a leadership level with KPIs driving all transformations while nearly 54% said their efforts are superior in analytics helping them set digitalization agenda



With globalization of energy and utilities industry, there can be significant competitive advantage that can be gained by embedding analytics in all enterprise efforts. Energy companies must bring a renewed focus on using analytics to help digitalization agenda.

Source: Trasers, Trianz

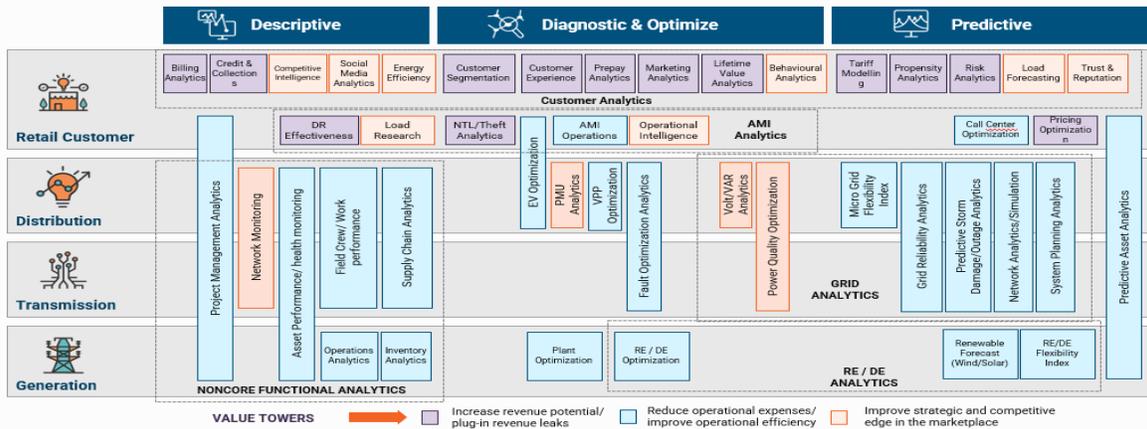
IV. EXTENDED APPLICABILITY

In Specific Fields

1. Healthcare: BI tools like Tableau and Power BI, combined with user training, can enable healthcare providers to analyze patient data, forecast outbreaks, and optimize resources.
2. Real Estate: Modern BI platforms facilitate portfolio analysis, allowing property managers to predict trends and make informed investment decisions.
3. Financial Services: BI competencies are critical in fraud detection, compliance monitoring, and customer behavior analysis.
4. Manufacturing: Skills in real-time BI tools like ThoughtSpot enable quick decisions on supply chain optimization and production scheduling.
5. Energy Sector :The energy sector is increasingly data-driven, with BI systems playing a critical role in addressing challenges related to operational efficiency, sustainability, and customer satisfaction.



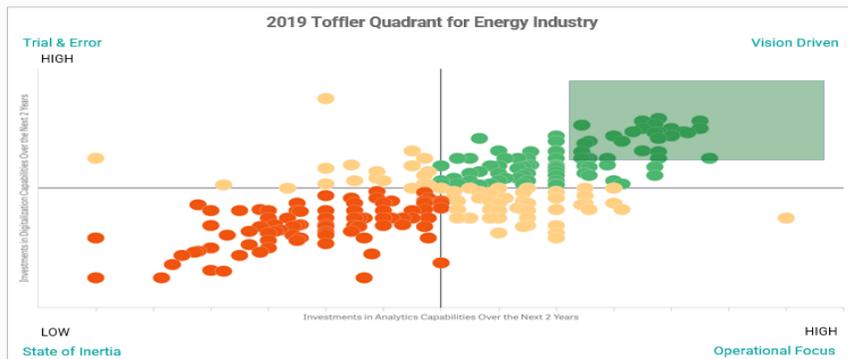
Scope of Enterprise Analytics In Energy Industry



In Alternate Fields

1. Education: Enhanced BI adoption through user training can improve student performance analysis and resource allocation.
2. Public Sector: Governments can utilize BI for data-driven policy making, enhancing transparency and resource efficiency.
3. Retail: Retailers can use BI for personalized marketing, stock management, and customer segmentation analysis.

2019 Digital Transformation Quadrant for the Energy Industry: Only 10% companies are led by a clear strategic point of view and a vision for leading in the digital era



Explanation of the Quadrants

- **State of inertia:** Companies making low, incremental investments in analytics & digitalization on a reactive basis; falling behind its competitors.
- **Operational focus:** Companies investing in analytics with a cost/profit optimization perspective, but not developing digital capabilities in parallel to leverage analytics.
- **Trial and error:** Companies that launch digital initiatives due to a perceived urgency or as a competitive reaction, but not with enough analysis to have a clear strategic point of view on differentiation.
- **Vision-driven:** Companies that make balanced investments and use analytics to develop a strategic point of view that guides and integrates digitalization capabilities toward a vision of leading in the digital era.

Source : Global Digital Transformation IT Survey 2019 –Automotive Industry sample Size: 500+

N=335

Reacting incrementally and constantly playing catch-up in digitalization investments will lead to an irreversible decline, as the vision-driven organizations increase their lead. Digitalization investments that are not based on data-based insights, industry benchmarks, and strategic analytics are sub-optimal. They consume executive attention and company resources, but do not provide competitive advantage in the digital era. CEOs must benchmark their organizations within and across industries, and use analytics to prioritize their transformation roadmaps.



V. CONCLUSION

As BI technologies evolve, their success depends on the human element: the skills and competencies of users. Organizations must adopt a dual approach by integrating modern BI platforms and nurturing a data-driven culture. This paper underscores the necessity for technical expertise, analytical thinking, and effective communication to bridge the gap between data and actionable insights. By fostering these competencies, businesses can not only enhance their decision-making processes but also future-proof their operations in an increasingly data-centric world.

Ultimately, while technology provides the tools, human proficiency unlocks their full potential, ensuring sustained growth and innovation across industries.

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