From Compliance to Revenue Generation: How ESG Practice Opens up Profit Growth Space for Traditional Enterprises

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Abstract. ESG (environment, society and Governance) has leapt from marginal issues to core strategic elements of business. Traditional enterprises used to regard ESG as a compliance burden, but with the capital market, consumers and investors turning to the responsibility profit orientation, ESG is transforming from a "compliance pass line" to a key engine driving enterprise transformation, reshaping competitiveness and creating economic benefits. Resource intensive and high emission enterprises are facing the dual pressure of growth slowdown and sustainable challenges, and it will miss major opportunities to regard ESG as a "cost center". This review focuses on how ESG practices transcend compliance and open up profit growth space for traditional enterprises. The core is to build and analyze the value creation path with digital transformation (DT) and green transformation (GT) as key levers and in-depth synergy of the two. In addition, although this paper focuses on traditional enterprises under heavy pressure (especially high emissions), the analysis framework and some conclusions are universal.

1 Introduction

Driven by the global wave of sustainable development, ESG (Environmental, Social and Corporate Governance) has moved deeper from its origins as an ethical initiative to the core of corporate strategy [1]. There has also been a shift in societal perceptions from viewing ESG practices as a burden to recognizing their importance as a basis for value creation [1,2]. Numerous studies have confirmed that ESG practices can significantly enhance corporate value [3,4]. First, good ESG performance creates a positive market image, enhances capital attractiveness, and increases operational efficiency, brand value, and profitability by enabling digital transformation and green innovation [3,5]. Second, companies that implement ESG segmentation strategies typically receive positive feedback such as increased return on green investments and improved customer retention [6,7]. In addition, Wang confirmed that ESG as a whole and its three dimensions (environmental, social, and governance) can significantly enhance corporate value, and specifically stated that traditional polluting industries should prioritize the strengthening of their governance structures [4]. Moreover, the role of ESG is

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not limited to cost control but also creates profit growth [3,8]. Digital transformation is widely recognized as a key way to improve ESG performance [7,9]. Studies have shown that digital technologies can drive companies to translate ESG performance into positive returns [10].

2 ESG development process and current status

2.1 ESG from social responsibility to strategic assets

ESG development process and current status: ESG has been transformed from the concept of Corporate Social Responsibility (CSR) to a strategic framework, and has become the core basis for capital market pricing and regulatory assessment [4]. This shift has been driven by both external regulatory pressure and intensified social supervision, as well as internal resource optimization and sustainable development needs of enterprises [4,11]. Traditional enterprises (especially those in energy-intensive industries) are evolving their perception of ESG from "compliance bottom line" to "transformation engine": Li Linghan and Li Lei confirm that digitalization and green innovation can significantly improve ESG performance and promote overall business development in manufacturing industries [5]. Wang et al. emphasize the need for enterprises to promote ESG in a comprehensive and collaborative manner to realize long-term benefits [4]. Currently, enterprises generally incorporate ESG into their daily management, but the maturity of the practice is uneven due to industry differences — SOEs have a head start by virtue of their institutional and resource advantages, while private enterprises need to dynamically adapt their organizational capabilities based on digital transformation [12]. Shih et al. further reveal the existence of differentiated ESG promotion paths and feedback mechanisms in different industries [6]. Due to the strict regulatory requirements and the increasing accountability of the capital market, many companies now have ESG expressions and disclosures attached to their traditional business and continue to incorporate them into their daily work, but the maturity of ESG practices is still uneven because of the large differences in industries and companies [7]. Among them, Jin and Wu argued that SOEs have the advantage of having institutional support and stronger access to resources, but they also need to improve and refine their capacity building and mechanism building [7]**. T**he ESG maturity of private manufacturing industry has to follow the trend of digital transformation in this industry as well as the dynamic adaptation of the organizational capacity to advance [12]. Shi et al. examined corporate ESG path selection and influence factors, adoption of ESG input benefits from the perspective of differentiation, and proved that there are different ESG advancement paths and feedback mechanisms in different industries, i.e., reflecting the characteristics of differentiation [6].

3 Equations and mathematics

3.1 Overall Role of ESG Practices

ESG practices drive value creation through operational optimization and rebranding [13,14]. Corporate ESG practices are profoundly transforming the operational model—introducing green supply chain and energy-saving and emission-reduction technologies to improve resource efficiency and reduce long-term costs, and relying on digital technologies to enhance transparency and responsiveness, and to achieve stable profitability [13]. Studies by Jiao Feng et al. and Yu Li and Xinjie Guo further show that low-carbon value-oriented resource allocation optimization significantly improves economic efficiency, while green

ESG practices simultaneously strengthen cost control and valuation release [3,14]. At the market level, ESG performance has become a key factor influencing consumer choice and capital preference, shaping brand premiums and expanding market share: L et al. specifically point out that the synergistic effect of ESG and green innovation can accelerate the development of green market profit margins, especially in the manufacturing industry, through the green product line and policy dividends to achieve revenue growth [15,16]. In summary, ESG has been transformed from a "passive cost" to a "strategic revenue engine", and its value release path is significantly differentiated by industry characteristics, especially in the application of the two levers of digital transformation and green transformation, where there are essential differences [10,4]. Based on the above, people can reach two levels of consensus: the first level of consensus—ESG practices can create significant value [3,15]; the second level of consensus is that the realization of ESG value creation (especially in the efficiency and growth dimensions) relies on the key levers of strategic transformation, which mainly include the two levers of digital transformation and green transformation [5,14]. The following section provides a comprehensive view of the role of these two levers in enabling companies to move from compliance to profitability based on previous research [6,7].

3.2 Leverage I - Digital transformation

Digital transformation (DT) reconstructs the enterprise value creation mode through a triple path: first, it realizes refined management and scientific decision-making based on the real-time collection and analysis of ESG data (carbon emissions, energy consumption and supply chain compliance) [6,7]. Jin et al. and Zhouzhumei commonly pointed out that DT systematically optimized ESG performance through absorption feedback mechanism, matching response mechanism and innovation efficiency improvement mechanism [7,16]. Shiguodong and Niuzhiwei et al. found that ESG segmentation strategy significantly improved green investment return and customer retention rate in the empirical study of manufacturing industry [6,17]. Second, DT empowers green technology breakthroughs and business model innovation: accelerate clean technology research and development by using AI material discovery and IoT product monitoring, and build a SaaS platform for carbon management to drive intelligent circular economy (such as intelligent recycling system). Lilinghan and Li Lei confirmed that this path optimizes resource allocation and avoids production waste by improving information transparency [5]. Besides, research collated by Niclas-Alexander M et al. demonstrates that digital transformation exerts a positive effect on fostering the development of a circular economy in manufacturing [18]. Third, DT enhanced governance: based on the data of A-share high carbon emission enterprises, show that the embedded compliance system and real-time risk early warning mechanism effectively balance the cost of compliance, especially for heavy pollution industries [10].

3.3 Leverage II - Green transformation

Green transformation (GT) releases profit growth through industry adaptation strategy: for traditional industries such as fossil fuels, Li F et al. confirmed that ESG performance drives substantial green invention patents (such as carbon capture technology) by easing financing constraints (significant intermediary effect) and improving executives' environmental awareness in two ways [3,15]. At the same time, relying on DT to reconstruct the value chain, it has spawned digital green services such as energy efficiency management SaaS and carbon asset custody, forming the second growth curve [3]. At the market level, ESG reputation premium significantly enhanced consumers' willingness to pay, and the improvement of ROA verified the valuation reconstruction of green growth in the capital market [3]. In addition, Wang Guihu’s article also highlights how zero-carbon finance supports enterprises’

green transformation and alleviates financing constraints [19]. Xuelian Wang revealed the differentiation of key industries: governance performance (Gov) of polluting enterprises is positively correlated with enterprise value, while environmental performance (Env) is negatively correlated, indicating that such enterprises need to give priority to improving governance structure to avoid regulatory penalties [4]. Non-polluting industries can obtain green subsidies and low-carbon financing dividends through comprehensive ESG integration [4].

3.4 Leverage II - Leverage synergy

To sum up, digital transformation (DT) and green transformation (GT) do not operate in isolation, but are interdependent and in-depth collaborative strategic levers that jointly amplify ESG's revenue-generating effect [14,20]. DT provides key support for GT: real-time data collection and analysis (such as IoT energy-consumption monitoring and supply-chain tracking) enable green process optimization and precise management of recycling resources [14]. Otherwise it is easy to fall into a technology island [20]. AI algorithms drive intelligent production scheduling to reduce waste, while digital platforms accelerate the implementation of green-product R&D and innovation services [3,5]. Conversely, GT defines the value direction for DT: green goals (such as carbon reduction and recycling) guide digital technology to focus on improving environmental performance and resource efficiency, and transform technological potential into sustainable competitiveness [15,4]. The combination of the two produces a multiplier effect: DT-driven transparent governance and risk management and control escort green investment, while the market demand created by green innovation (such as low-carbon-product premium and green-service income) provides continuous economic power for digital transformation [3,10]. For example, construction enterprises use BIM (DT) to achieve accurate calculation of building materials and reduce waste (GT), and optimize photovoltaic-system efficiency (GT) through an energy-management platform (DT), significantly reducing costs and increasing green premium [14]. This closed loop of “digital enabling green, green driving value” is the core mechanism for traditional enterprises to exceed compliance and achieve ESG revenue [3,14].

3.5 Impact of industry characteristics on ESG's income generation

There is significant industry heterogeneity in the impact of ESG performance on enterprise value (EV), which is especially significantly regulated by the pollution attribute of the industry [4]. This has a profound impact on the design focus and resource allocation of enterprise ESG strategy [4,21]. In non-polluting industries: ESG as a whole, environmental (E) and social (S) dimensions are significantly positively correlated with EV [4,22]. Its value creation is mainly realized through the following paths: the application of clean technologies (such as the transformation of renewable energy) reduces long-term operating costs, superimposes social-responsibility practices (such as community co-construction) to shape brand reputation, attracts ESG-preferred investors and consumers, and directly pushes up market valuation [22]. Relying on digital transformation (such as loT energy-consumption monitoring, supply-chain traceability and other digital tools) to achieve precise resource management and improve the return on green investment [5,6]. In polluting industries (such as fossil fuels and heavy industry): the ESG income-generation path presents structural contradictions [4,10].

Compliance-cost trap of environmental performance: environmental inputs (such as end-of-pipe pollution-control facilities) push up operating expenses in the short term and are regarded as “passive compliance” behaviour by the market, resulting in a significant negative correlation between environmental performance and EV [4].

The core value status of governance performance (G): the governance dimension (Gov) is the only factor that significantly promotes EV, because a sound governance structure (such as an independent board of directors and embedded compliance system) can reduce the risk of regulatory penalties and enhance investors' confidence in green transformation [4,10].

Failure of social performance: social investment (such as community compensation) has not been translated into EV improvement, and public doubts about its environmental-protection performance may offset the positive impact of social contribution [21].

4 Conclusion

This review deeply discusses how ESG practices transcend the traditional compliance framework and open up substantial profit growth space for traditional enterprises facing growth bottlenecks and sustainable development pressure from "compliance to income generation". The following are the core conclusions:

First, the positioning of ESG has fundamentally changed: ESG has evolved from the compliance burden and moral responsibility imposed externally to the key driving force for the core strategic assets and value creation of enterprises. Excellent ESG performance can not only meet the increasingly stringent regulatory requirements and stakeholder expectations, but also directly or indirectly improve the economic benefits of enterprises through multiple paths, realizing the transition from "cost center" to "strategic revenue engine".

By optimizing operational models and implementing cost-saving measures—including green supply chain management, energy-saving and emission-reduction technologies, circular economy models, and digital transformation-driven precision management (e.g., real-time energy monitoring and intelligent production scheduling)—resource utilization efficiency can be significantly enhanced. These initiatives will ultimately reduce long-term operational costs (such as energy, raw materials, and waste disposal) and compliance expenses. In addition, good ESG performance can also shape a responsible corporate image, gain consumer preference and brand premium, and improve customer loyalty and market share. At the same time, meeting the requirements of investors and capital markets preferred by ESG can broaden financing channels (especially green financing), reduce capital costs, and improve the overall market valuation of enterprises.

Third, the creation of ESG value—especially the efficiency and growth dimensions—hinges on two strategic levers: digital transformation (DT) and green transformation. DT acts as the underlying enabler. It supplies real-time data collection and analytics, which optimize decisions, cut costs, and boost efficiency. DT also accelerates green-tech R&D and new-product development, such as AI-driven material discovery and IoT-based monitoring. Finally, it strengthens risk-management transparency and governance through embedded compliance tools and real-time early-warning systems. Green transformation (GT) is an efficiency converter. It throttles resource use and environmental impact by reinventing processes and building circular-economy models. GT also opens new revenue streams through green products and services, while hedging potential losses via stronger environmental risk management. In this way, it turns ESG environmental duties into measurable financial gains. Deep integration with digital transformation then propels lasting competitive advantage. The two are not isolated. It is interdependence and synergy. DT provides GT with data base, technical tools and efficiency guarantee (such as optimizing green process and accurately managing recycling resources), while GT defines the direction and goal of value creation (serving environmental performance improvement and green innovation) for DT. The effective combination of the two can maximize the income generating potential of ESG.

Fourth, the income generation path of ESG needs to consider the industry characteristics. For "traditional" industries with high emissions and high pollution (such as fossil fuels, heavy industry and construction), research shows that priority to strengthen governance structure (g dimension) is the core strategy to balance compliance costs and value creation, avoid risks and ultimately enhance enterprise value, which may be more important than short-term, high-cost environmental end treatment investment. "For traditional enterprises with limited resources (such as small and medium-sized private enterprises), people can learn from the hierarchical strategy of digital cost reduction first, and then green income generation. For example, people can give priority to the deployment of 10t energy consumption monitoring system (DT) to reduce compliance costs, and then invest in carbon capture technology (GT) after the market returns. Digital transformation plays a particularly prominent role in improving the governance efficiency and risk control of such enterprises. In addition, traditional enterprises need to be driven by two wheels to promote ESG income generation: internally cultivate management with cross domain vision to coordinate technology green strategy (composite CEO effect), externally strive for government subsidies to build lightweight digital infrastructure (such as carbon management SaaS), and reduce initial transformation costs. In addition to industry differences, enterprise size is the key watershed: large enterprises can easily realize DT-ESG synergy by virtue of resource advantages (such as cost reduction and efficiency increase in digital production); Small and medium-sized enterprises need to reduce the threshold of transformation through lightweight digital tools (such as SaaS platform) to avoid high cost investment and profit.

To sum up, ESG practice provides a strong strategic framework and implementation path for traditional enterprises to move from compliance to income generation. Its core lies in driving operation optimization, value creation and risk management through two levers, digital transformation and green transformation. Despite the challenges of standardization and research depth, it is undoubtedly the inevitable choice for traditional enterprises to reshape competitiveness and open up a new blue ocean of profits in the era of sustainable development to deeply integrate ESG into enterprise strategy and operation and actively embrace digital and green transformation.

Authors contribution

All the authors contributed equally and their names were listed in alphabetical order.

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