

MEASURING SUSTAINABLE DEVELOPMENT IN ADVANCED ECONOMIES: BETWEEN EVIDENCE AND COMPLEXITY

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Contemporary societies are undergoing profound transformations — economic, social and ecological — that are redefining the very meaning of development. The 2030 Agenda and the Sustainable Development Goals (SDGs) have established themselves as a global reference framework for guiding public action. Their application in advanced territories raises a fundamental challenge: **how to adequately measure realities that are growing ever more complex.**

Measuring sustainable development is not a neutral technical exercise. It involves deciding what is observed, how it is observed, and with what tools that information is interpreted. Indicator systems do not merely describe reality — they structure it: they determine which dimensions are considered relevant and which fall outside the analytical focus. Rather than offering an objective snapshot, indicators construct a particular way of understanding progress.

From measurement to interpretation: the role of indicator systems

SDG monitoring systems are typically conceived as performance evaluation instruments. Their function, however, goes well beyond simple measurement. These systems operate on two levels: on one hand, they organise the available empirical evidence; on the other, they allow for a strategic reading of processes of change.

This dual nature introduces a first layer of complexity. Not all indicators have the same explanatory power. Some are grounded in long, stable, comparable statistical series that allow trends to be identified with clarity. Others are built from fragmentary data, indirect proxies or evolving methodologies, which limits their analytical robustness. The coexistence of these different types of evidence demands that we abandon any homogeneous reading of the system and adopt a basic principle of caution: **not everything that is measured permits conclusions to be drawn.**

Add to this the heterogeneity of statistical sources. Within a single system, data coexist from administrative records, surveys, estimates and indirect approximations, with varying periodicities and temporal coverage. This diversity directly affects the interpretation of results, since the ability to identify trends depends as much on the volume of available data as on its consistency over time.

Comparability presents another major challenge. Although the SDGs are framed as a universal framework, their statistical translation at territorial scale is not always equivalent. Differences in definitions, methodologies or units of measurement can generate apparent comparisons that, in reality, lack a homogeneous basis. Comparative analysis must therefore be understood as a contextual exercise, not as an automatic performance ranking.

The limits of measurement: when data fail to capture reality

One of the most significant aspects of analysing indicator systems is identifying their limits. The existence of data does not always guarantee a robust evaluation. In many cases, monitoring systems include explicit categories that reveal these limitations: unavailable data, non-evaluable indicators, or metrics not applicable to certain territorial scales.

These categories do not represent failures of the system — they are signals of its analytical frontiers. They indicate that relevant phenomena are not being adequately captured, or that the

available tools do not permit robust interpretation. In this sense, the absence of information should not be confused with the absence of a problem.

The use of proxies adds a further layer of complexity. Many indicators do not directly measure the phenomenon they seek to observe, but approximate it through substitute variables. Whilst these approximations can be useful, they also introduce risks of simplification or distortion — particularly in contexts where social processes are highly complex and multidimensional.

A paradigm shift: from access problems to complex vulnerabilities

Beyond methodological challenges, the very object of measurement is changing. In advanced economies, the classic problems of development — linked to access to basic services — have given way to challenges of a more complex nature. Sustainable development is no longer defined solely by coverage, but by the quality, distribution and sustainability of outcomes.

This paradigm shift is reflected in the emergence of what might be called a phase of "development maturity". Many traditional indicators are approaching saturation. Near-universal coverage in areas such as education, health and basic services produces a ceiling effect that limits the capacity of these indicators to register further improvements. Statistical stability ceases to be a sign of stagnation and comes, in many cases, to reflect the consolidation of structural achievements.

Yet this saturation coexists with the emergence of new vulnerabilities. Inequalities are no longer manifested primarily in access, but in the distribution of opportunities, in the quality of services, or in the life trajectories of different social groups. These are subtler, more persistent and harder-to-measure inequalities — ones that are not always captured by traditional indicators.

At the same time, a growing dissonance is emerging between objective conditions and social perceptions. Indicators showing high levels of wellbeing can coexist with feelings of insecurity, distrust or deteriorating social cohesion. This gap reveals that wellbeing is not solely a matter of quantifiable magnitudes, but also of subjective experiences and relational dynamics.

Ecological transitions and structural tensions

The environmental dimension introduces, moreover, a set of structural tensions that challenge traditional measurement frameworks. The transition towards more sustainable productive models involves balancing objectives that sometimes come into conflict: economic growth, emissions reduction, employment maintenance and industrial transformation.

In this context, aggregate indicators can offer seemingly positive signals — such as the reduction of certain environmental pressures — without reflecting the internal dynamics of the most intensive sectors or the inequalities in the impacts of the transition. Sustainable development thus becomes a process of balancing multiple objectives, where progress in one dimension may generate costs or tensions in another.



Figure 1: Visible aspects and hidden dimensions

Towards a new measurement agenda

The convergence of growing problem complexity and the limitations of indicator systems points to the need for an evolution in measurement tools. This is not merely a matter of incorporating more data, but of improving their capacity to capture the relevant processes.

This requires progress on several fronts. First, developing indicators more sensitive to internal inequalities and to the trajectories of different social groups. Second, integrating dimensions that are currently underrepresented — such as mental health, quality of employment or community cohesion. Third, adapting global frameworks to territorial specificities through calibration processes that allow for a more accurate reading of local reality.

Ultimately, the challenge is not only to measure better, but to **measure what truly matters**. In a context of profound transformation, the capacity of indicator systems to evolve will largely determine their usefulness as governance tools.

Conclusion: measure to understand, understand to transform

Measuring sustainable development in advanced economies sits at the intersection of evidence and

interpretation. Indicators remain an indispensable tool, but their value depends on the capacity to recognise their limits and contextualise their results.

Far from offering closed answers, monitoring systems should be understood as knowledge infrastructures that enable better questions to be asked. In an environment characterised by uncertainty and complexity, measurement is not an end in itself, but a means to understand processes of change and guide collective decisions.

In this sense, the challenge of the 2030 Agenda is not only to advance towards the defined objectives, but to build measurement frameworks capable of accompanying the evolution of our societies. Because, ultimately, only what we are capable of understanding with precision can be transformed with judgement.

Illustration: Faded Gallery

