

ANALYTICS AND TECHNOLOGY IN SUSTAINABLE DEVELOPMENT DECISION-MAKING

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Business analytics and modeling techniques are utilized in many areas of economics, business, engineering and science to improve performance. While environmental and sustainable development goals may look conflicting with the business objectives, analytics and technology can help resolving this tension to achieve all objectives simultaneously.

We have at least two possibly conflicting objectives in our decision making and those are minimizing environmental impact and maximizing economic profits. While during the last century economic and ecological goals were mostly conflicting with each other, nowadays those goals are getting more and more aligned. The target of reaching sustainable development assumes that meeting the needs of the future depends on how well we balance economic and environmental objectives – or needs – when making decisions today.

Nowadays, greening of economy presents more opportunities, but at the same time we are facing many more environmental risks. From one side, companies go green and proportion of green goods constantly grows. In addition, new technological advances especially in the renewable energy sector reduce the amount of greenhouse gas emissions. On the other side, we face more environmental risks that are resulted from both human activity and natural disasters. Consequently, environmental risks need to be evaluated more carefully than in the past. For instance, building new infrastructure without complex investigation of all environmental risk factors is too dangerous and can lead to large losses, both in human lives and in economic downturns.

Many businesses increase their environmental awareness by emphasizing their environmental initiatives like greenhouse gas emissions reduction resulted from clean technologies or from minimizing processing times and customer waiting times. In many cases greening of the companies can be attributed to using smarter analytics while harvesting Big Data available from different sources, such as sensors, cameras, databanks and social media. The competition has increased due to the fact that companies and businesses can make profits by going green. The fastest growing “green” industrial sectors are the renewable energy and innovative technologies for operating buildings. For instance, innovative technologies for operating buildings include “green” housing and geothermal heating and cooling. These two directions created the concept of distributed power generation that will replace centralized power generation at the power stations by power generated at the residential buildings and re-distributed among the consumers. Those new power grids can be highly optimized using smart computing in order to improve energy distribution effectiveness even more.

In conclusion, innovation, technological advances and modern information

technology including business analytics and optimization will be the leading forces driving sustainable development and rational use of natural resources. Higher environmental risks that we are facing will need to be taken into account when planning for the new and managing existing industrial infrastructure.

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