Digital technologies and eco-innovation. Evidence of the twin transition from Italian firms

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We investigate the extent to which the twin – digital & green – transition unfolds at the firm level, by relating firms' investments in digital technologies to their propensity of eco-innovating their production processes and models. Extending previous studies on the relationship between ICT and eco-innovation (EI) and drawing from recent economic research on Industry 4.0 and artificial intelligence (AI), we expect that AI technologies are more eco-enabling than other digital technologies, like internet-based ones or cybersecurity. Using the first wave of the new Permanent Census of Italian Firms of the National Statistical Office (ISTAT), we test our hypotheses on a large sample of more than 150,000 Italian firms. Results confirm that the contribution of digital technologies to the green transition at the firm level is mainly driven by investments in AI, while investments in other digital technologies work more selectively. Moreover, new eco-innovative production processes and models benefit from bundling investments in different digital technologies.