

# When Big Data is not enough: the role of simulation methods

Big Data	System Dynamics	Complementarity
<ul style="list-style-type: none"> <li>Exponential growth and availability of data: volume, velocity and variety</li> </ul>	<ul style="list-style-type: none"> <li>Computer-aided approach to policy analysis and design using synthetic data</li> </ul>	<ul style="list-style-type: none"> <li>Simulation can complement big data by offering future-oriented data stream</li> </ul>
<ul style="list-style-type: none"> <li>More data lead to more accurate analyses : descriptive and predictive focuses</li> </ul>	<ul style="list-style-type: none"> <li>Endogenous, behavioural view of the significant dynamics of a system focused on feedback processes: prescriptive focus</li> </ul>	<ul style="list-style-type: none"> <li>The full spectrum of analytics: descriptive and predictive (big data and data science) together with prescriptive (simulation)</li> </ul>
<ul style="list-style-type: none"> <li>Strongly dependent on resources and capabilities:               <ul style="list-style-type: none"> <li>Technology quality</li> <li>Analytics capabilities</li> <li>Organizational structure</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Mature and low cost technology to generate synthetic data</li> </ul>	<ul style="list-style-type: none"> <li>Interactivity and closeness to decision maker</li> </ul>
<ul style="list-style-type: none"> <li>Leading to value creating actions</li> </ul>	<ul style="list-style-type: none"> <li>Leading to organizational learning</li> </ul>	<ul style="list-style-type: none"> <li>Learning from structure can provide better data analysis</li> </ul>
<ul style="list-style-type: none"> <li>Mainly emergent</li> </ul>	<ul style="list-style-type: none"> <li>Mainly top-down</li> </ul>	<ul style="list-style-type: none"> <li>Emergent patterns to check and support planning and policy making</li> </ul>