

Sustainable Ecological Transition

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An increasing amount of emissions fall under an emission trading system.

+1,1°C

Global warming since the pre-industrial era and the trend is not reversing. Every tenth of a degree counts.

-80%

Decrease in the number of insects in the world over the past 30 years, reflecting the ongoing collapse of biodiversity.

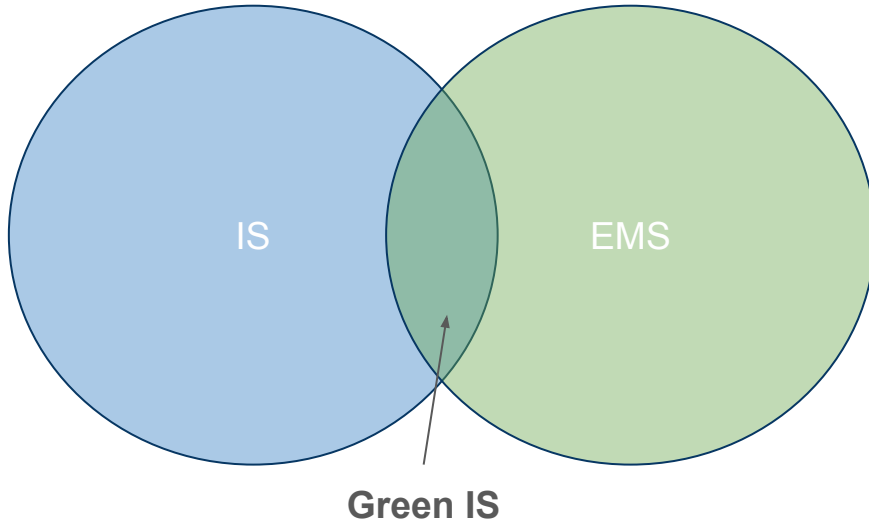
18%

Share of industry in annual greenhouse gas emissions (France). We must support it in reducing its overall climate impact.

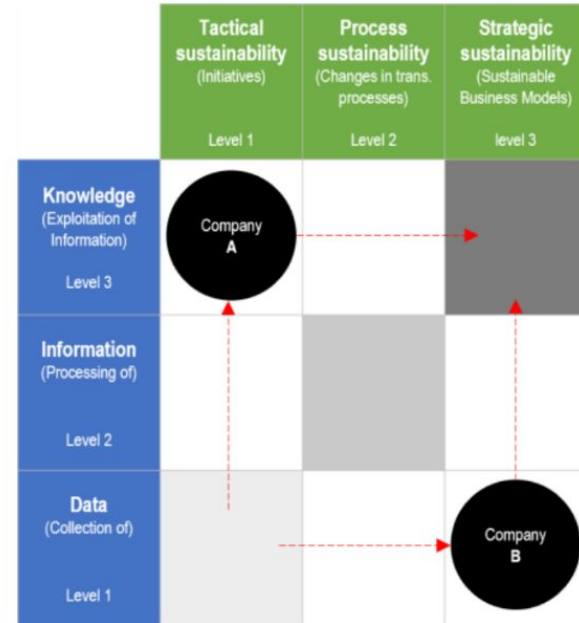
-4,7%

Average annual rate of reduction in greenhouse gas emissions to be achieved in France between 2022 and 2030, to comply with the Paris agreement.

Exploration of IS-EMS intersection



"Green IS initiatives are manifestations of sustainable business practices"



IS : Information System
EMS : Environmental Management System

Source : Quisbert-Trujillo, E., & Ben-Rejeb, H. (2023, August). Methodological Transition Towards Sustainability: A Guidance for Heterogeneous Industry. In European Conference on Software Process Improvement (pp. 182-192). Cham: Springer Nature Switzerland.

Green IS Research Area

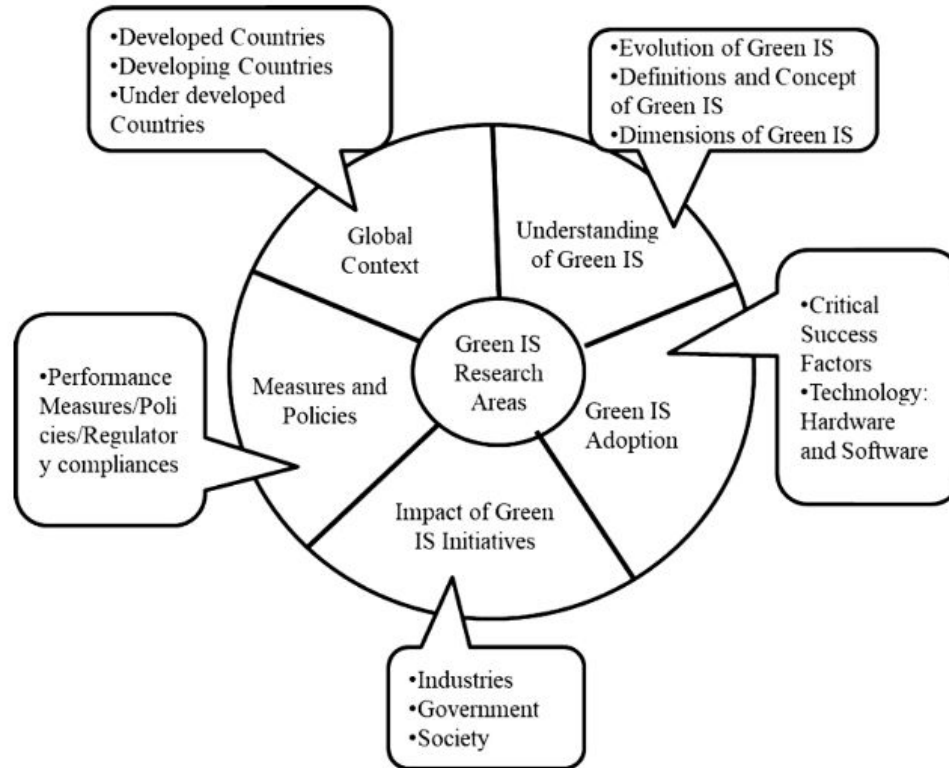
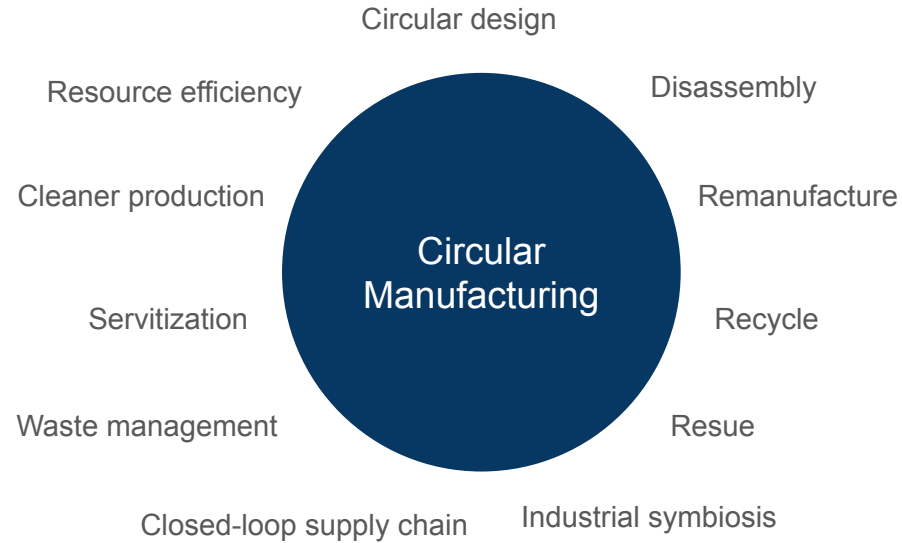


Fig. 2. Literature Review Classification of Green IS Research Area.

Source : Singh, M., & Sahu, G. P. (2020). Towards adoption of Green IS: A literature review using classification methodology. *International Journal of Information Management*, 54, 102147.

Green IS initiatives : Circular manufacturing exemple



Circular design

Table 1. Circular design adoption data, information and technologies/tools.

[21,37–39,41–43,45–48]			
Product	Process	Managerial	Technology/Tools
<ul style="list-style-type: none"> - Product Functionalities, - Product Features, - Product Architecture, - Product Geometry, - Material Mix (weight and type), - Components Specifications, - Assembly Instruction, - Reuse Possibility, - Overall Costs, - Users preferences and requirements, - Reparability, - Durability, - Maintainability, - Modularity, - Joints 	<ul style="list-style-type: none"> - Material and Energy used to produce and use product monitoring - Disassembly time and costs - Distribution: long/short/direct chain - Machinery and Equipment maintenance activities 	<ul style="list-style-type: none"> - Warranty programs - Maintenance service - Material Procurement - Supplier selection - Leasing agreement - Take back service 	<ul style="list-style-type: none"> - Visual Analytical Tools - CAD 3D - BOM - PLM - Sensors - MES - ERP

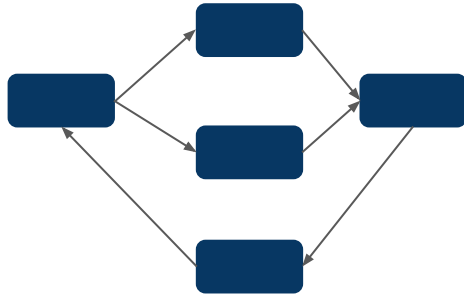
Source : Acerbi, F., Sassanelli, C., Terzi, S., & Taisch, M. (2021). A systematic literature review on data and information required for circular manufacturing strategies adoption. *Sustainability*, 13(4), 2047.

Final outcome

Outcome 1: List of initiatives related to our cases

Green IS initiatives	Data			Technology
	product	Process	Management	
Power-off system	X	Y	Z	ABC
Facility management system	U	V	W	DEF

Outcome 2 : Framework to update the current information system



How implementing and adopting Green IS initiatives can help Ecological Transition ?