# LIFE CYCLE ASSESSMENT, ROLE AND LIMITS IN NEW BUSINESS MODELS

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CIRCULAR ECONOMY CHAIR Quantifier, mesurer et évaluer l'économie circulaire

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## Our Vision: Provide sustainable mobility for all, today and tomorrow

"Groupe Renault intends to generate growth and profit over the course of the plan, while addressing customers' needs. Market by market, from congested megalopolis to rural areas, from affordable passenger cars to ride hailing, robo-taxi operations, Groupe Renault will Drive the Future."

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## MULTI STAKES + MULTI STAGE + COLLECTIVE

#### Understand and measure externalities

Develop a thorough understanding of how your company's business activities translate into economic, environmental and social impacts in the context of the SDGs.

#### Set goals

Plot a course towards enhancing positive and mitigating negative SDG impacts.

#### **Develop business solutions**

Apply an SDG lens at the strategic level to harness your organization's <u>potential</u> to engineer business solutions that make your company more successful and sustainable.

#### Communicate

Consider regular and transparent communication of SDG performance and progress.



#### LIFE CYCLE ASSESMENT - ISO 14040:2006 SERIES





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SINCE 1996, LIFE CYCLE ASSESSMENT MEASURE VARIOUS IMPACTS AT ALL STAGE OF THE PRODUCT LIFE

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### AN AUTOMOTIVE STORY OF LCA



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### SINCE 2005 ... MAJOR USAGES OF LIFE CYCLE ASSESSMENT



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### RENAULTS HAS DEVELOPPED A SERIES OF CIRCULAR ECONOMY ACTIVITIES

TOWARDS MORE RESOURCE EFFICIENT BUSINESS MODELS



### SAVING CO2 AND PRESERVING THE VALUE OF MATERIALS

#### TOWARDS MORE RESOURCE EFFICIENT BUSINESS MODELS



+50% RECYCLED PLASTICS USED BY RENAULT WORLDWIDE IN 2022 VS 2013



>56 000 tons Recycled polymers avoided carbon emissions in 2018 NEW ZOE RECYCLED FABRICS: NOTHING IS LOST



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-60% CO2 emissions avoided with the production of recycled yarn compared to standard manufacturing.

LIMITS : Recycling ecosystem is new, non representative data. Check logistic data.
RECOMMANDATION : Integrate actors of the business ecosystem

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### SAVING CO2 AND PRESERVING THE VALUE OF PARTS

#### **TOWARDS MORE RESOURCE EFFICIENT BUSINESS MODELS**





**Mechanical parts** Remanufacturing

**INTENSIFY** USF

"When a re-manufactured gearbox leaves Choisy, it contains an average of 75% pre-used but tested parts. When an engine leaves Choisy, it contains 38% pre-used tested parts."

**Battery** 2nd life Fixed storage provided by second-life electric car **batteries** (Porto Santo)



**Groupe Renault announces the** launch of "Advanced Battery Storage" **Biggest energy stationary storage system** from EV batteries in Europe (capacity = 60 MWh)

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LIMITS : HOW TO ALLOCATE EMMISSIONNS TO EACH LIFE ? **RECOMANDATION : SCORELCA STUDY (2019)** 

For an engine

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### **RENAULTS HAS DEVELOPPED A SERIES OF CIRCULAR ECONOMY ACTIVITIES**

#### **TOWARDS MORE RESOURCE EFFICIENT BUSINESS MODELS**





**Groupe Renault and Ferrovial** are about to launch a ZITY free-floating car-sharing service in Paris.



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### LCA CURRENT DEVELOPMENTS



Human rights Working conditions

#### LOCAL IMPACTS 6 CLEAN WATER AND SANITATION 3 GOOD HEALTH AND WELL-BEIN 14 BELOW WATER 15 LIFE ON LAND



Water Human and ecosystem Toxicity



True TCO, Green NPV, EP&L

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LCA is still a recent tool and current development intent to broder the scope



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### **OUR MONITORING : PRESERVE VALUE**

The **"Technical and economic value of parts and materials preserved in the automotive sector through circular economy activities"** indicator is designed to measure the outcomes achieved by the Group and its subsidiary Renault Environnement in terms of the take-up of circular economy principles at the various stages of the product life cycle.



The circular economy activities of Groupe Renault and its subsidiary Renault Environnement enabled the creation or preservation of **more than €200 million** in technical and economic value during the 2019 financial year

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RENAULT Original indicator to track progress on circular economy: Preserved value

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#### COUNTING AS A FIRST STEP, WHAT'S NEXT ?



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#### **EXPANDING LIFE CYLE ACTIVITIES, ORGANISATIONAL MATURITY LEVELS**



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Stéphane Morel. L'empreinte environnementale à l'ère de la société collaborative : de l'Analyse du Cycle de Vie comme outil expert à une instrumentation collaborative pour conduire une transition organisationnelle. Gestion et management. Ecole Nationale Supérieure des Mines de Paris, 2014.

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LALOUX (2014), Reinventing organization WILBER (2008), Le livre de la Vision Intégrale

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### **MANAGEMENT X MATURITY = ECOTRANSITION MATRIX**

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∕ ভ wbcsd		Compliant	Fragmented	Integrated	Extended	Integral
Deployment of a sustainable life cycle management	<b>Plan</b> Set goal	Isolated projects, difficult for employees to see links to company goals. No formal assessment, anecdotal observations only	Key goals of plan understood by most employees. Process owners engaged in developing project plans.	Project plans, <u>coordinated with</u> <u>overall company plan</u> . Formal project management process to <u>monitor against milestones</u> , review with corrective action to ensure targets achieved	Detailed plans <u>coordinated with</u> <u>value chain partners</u> , sharing of best practices. Progress monitored relative to both financial and non- financial targets;	Stakeholder process in place to monitor progress against <u>broader</u> <u>social goals</u> . Value chain partners contribute openly to <u>public dialogue</u> .
	Enable Understand	Lagging financial indicators & reports. Training ad hoc; IT systems fragmented	Some use of non- financial data, poorly integrated and inconsistent. Elements of common IT infrastructure in place.	Partial <u>integration with traditional</u> <u>company IT</u> system. Personal development in place for all employees, <u>sustainability training</u> & development.	Information system <u>integrates</u> <u>financial and non- financial</u> data to enable sustainability assessments.	Opportunities to extend learning with participation in stakeholder outreach & partnerships. <u>Value</u> <u>chain systems interoperable to</u> <u>support life cycle modeling</u>
	Evaluate Understand	Processes and tools vary by program, product line or location.	Key processes standardized. High leverage opportunities for common tools identified and deployed in some areas.	Plans in place to deploy common tools. Variation analysis extended to select suppliers to improve resiliency to external shocks	Common tools & systems in place. Data sharing protocols defined for key stakeholders. Robust design s used to optimize product systems life cycle.	Common tools. Formal process to balance efficiency and resiliency provides <u>significant benefits to all</u> <u>stakeholders</u> across product system life cycle
	Eco-Design Solution	Design and development in functional silos. Environmental concern limited to compliance.	Manufacturing and assembly considered in design. Pollution prevention/ waste minimization focus, some integration.	Key customers participate in design projects. Impact of design trades on customer value. Material & energy env impacts. Well established cross- functional teams	Customer actively integrated at multiple levels. Quantification of <u>life</u> cycle impacts routine for new product family.	Life cycle impacts evaluated with sustainability measures. Stakeholders engaged proactively to optimize process impacts from social perspective.
	Value Communication	Reactive business planning Internal perspective, "sell what we make"	Competing views of SD, efforts not consistent or aligned	Competitive benefit of SD recognized, but not well integrated. Strategic planning explicitly considers key stakeholders	Customer definition of <u>value guides</u> <u>strategy</u> . How the organization contributes to the success of value chain defined & incorporated into most programs	Effective integration/ <u>collaboration</u> of value chain partners to achieve competitive business advantage & deliver positive <u>social/</u> <u>environmental benefits</u>
WBCSD (2019), MOREL (2014), UNEP/SETAC CMM (2011)						
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#### TAKE HOME MESSAGES - LCA, ROLE AND LIMITS IN NEW BUSINESS MODELS

LCA IS STILL A BABY TOOL ! Development continues with cross skills collaboration LCA IS A SYSTEMIC APPROACH DNA adapted to new business models

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## LCA IS NO MORE EXPERT ONLY Decision maker, customers and regulation appeal

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Paris).

If you want to know more ...



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LCA of Fluence and Fluence ZE, Renault (2011) https://group.renault.com/en/our-

commitments/respect-for-the-environment/life-cycle-analysis/

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Q&A



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### **COLLABORATIVE LCA (Co-LCA) 5E Scheme**

