LCA FORUM ZURICH – AUGUST 30TH 2017
«FROM THE FIRST LCA TO COLLABORATIVE LCA OF INNOVATIVE PRODUCTS AT RENAULT»

Stéphane MOREL –
Senior Specialist EcoEfficiency ; Material Strategy
RENAULT

GROUPE RENAULT

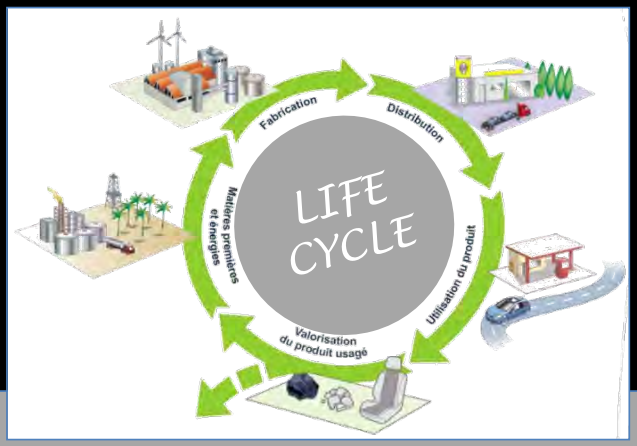
AN AUTOMOTIVE JOURNEY OF LCA

Matterhorn - Mountain in Alps - Thousand Wonders

AN AUTOMOTIVE JOURNEY OF LCA… FROM THE FIRST LCA TO COLLABORATIVE LCA (Co-LCA)

Matterhorn - Mountain in Alps - Thousand Wonders

DISCOVERING, FROM 1970 TO 2010



1970 1980 1990 2000 2010

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IMPROVMENT … MAJOR USAGES OF LIFE CYCLE ASSESSMENT

CARBON FOOTPRINT

KPI Group 2010-2016

CDP A LIST 2016 CLIMATE

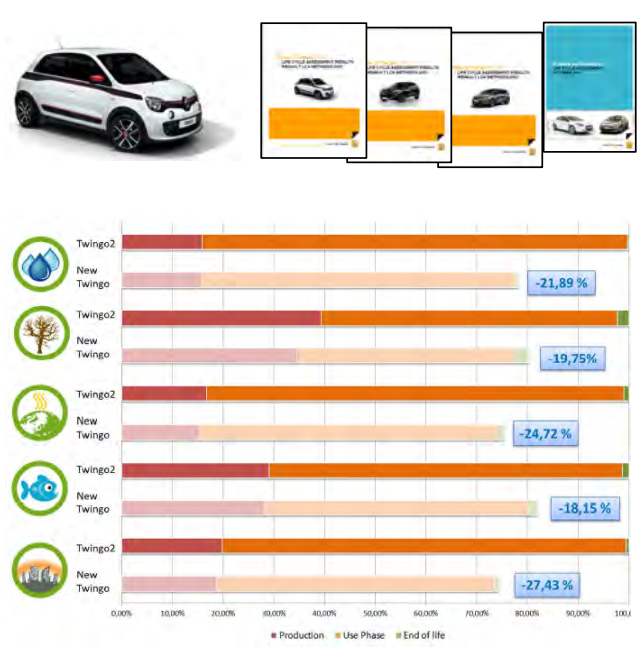
CLIMAT

EMPREINTE CARBONE

-3% /AN

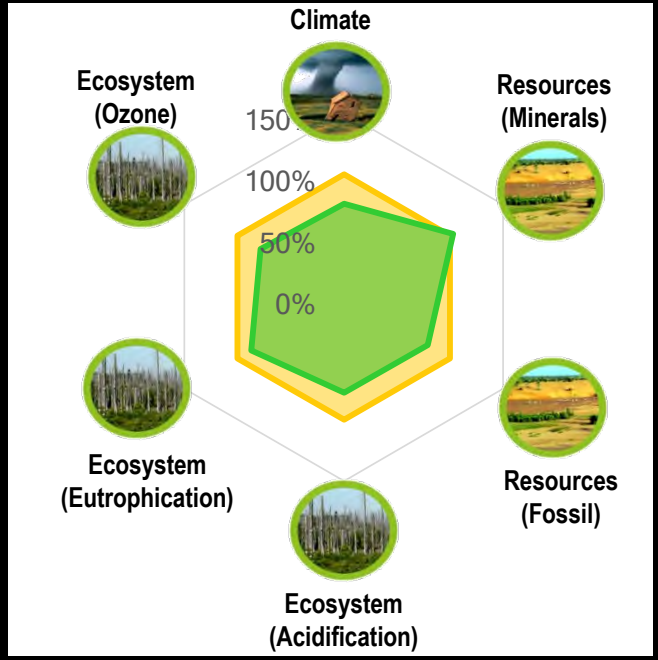
PRODUCT IMPROVMENT

Vehicle performance

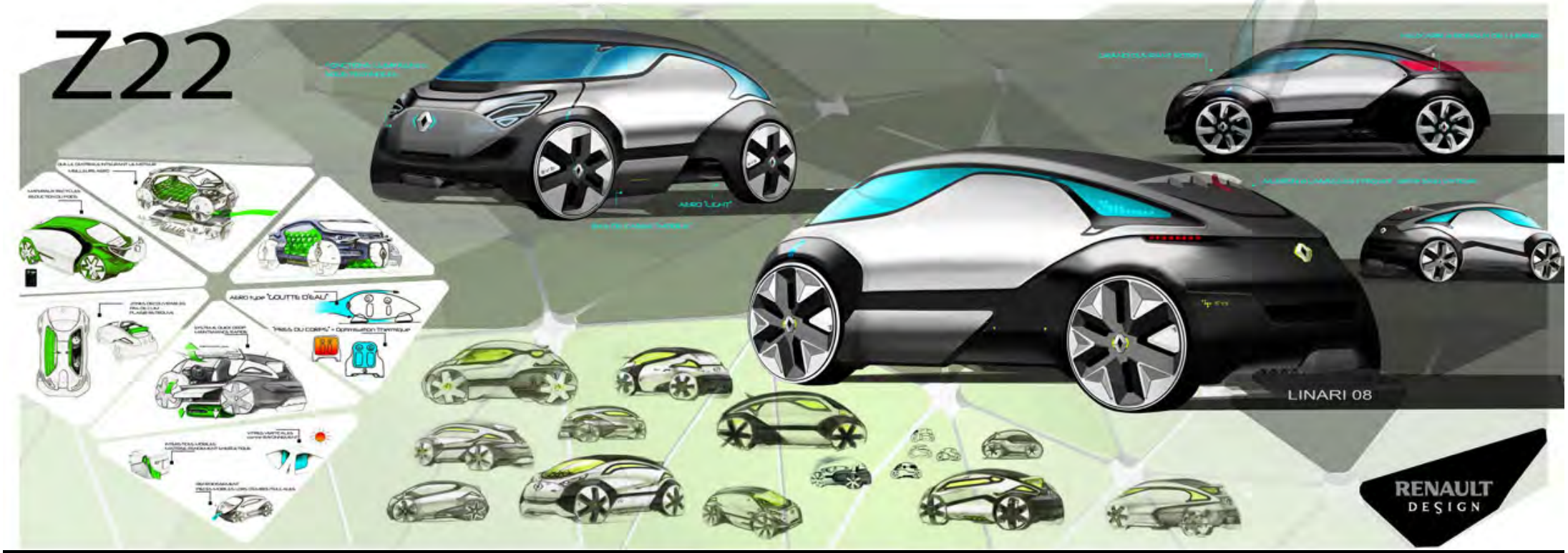


NEW TECHNOLOGIES

Environmental orientation



NEW CHALLENGE, AN INNOVATIVE PRODUCT …

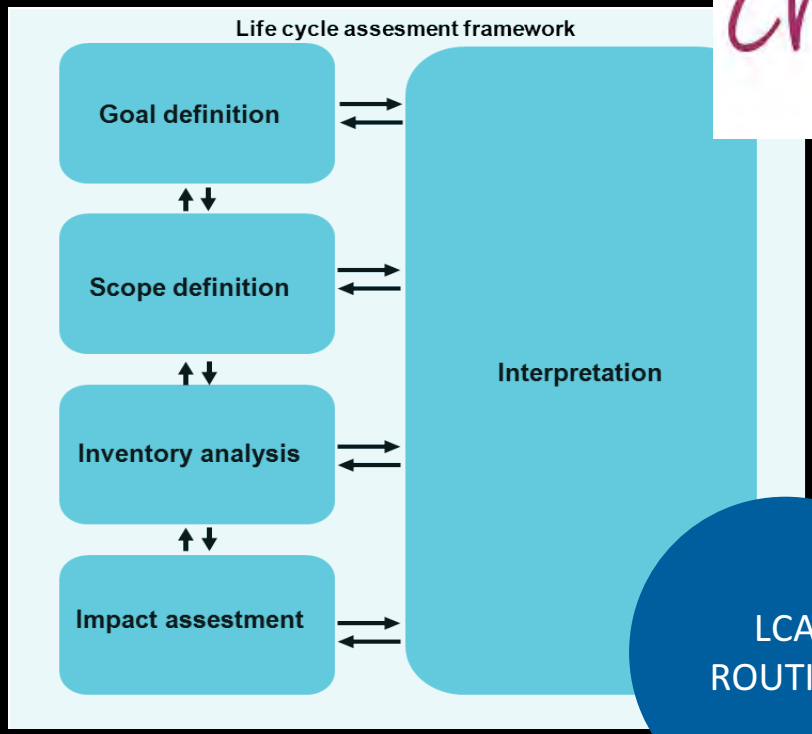


INNOVATION → NEW LCA RULES → COLLABORATION

Linari (2008), Renault Design
Abrassart (2011), La naissance de l'éco-conception

AN INNOVATIVE PRODUCT … AND A HIGH LEVEL OF EXPECTATION

challenge



LCA ROUTINE

HIGHLY INNOVATIVE

KEY DECISION : ENGAGE A DIALOGUE WITH OUR STAKEHOLDERS

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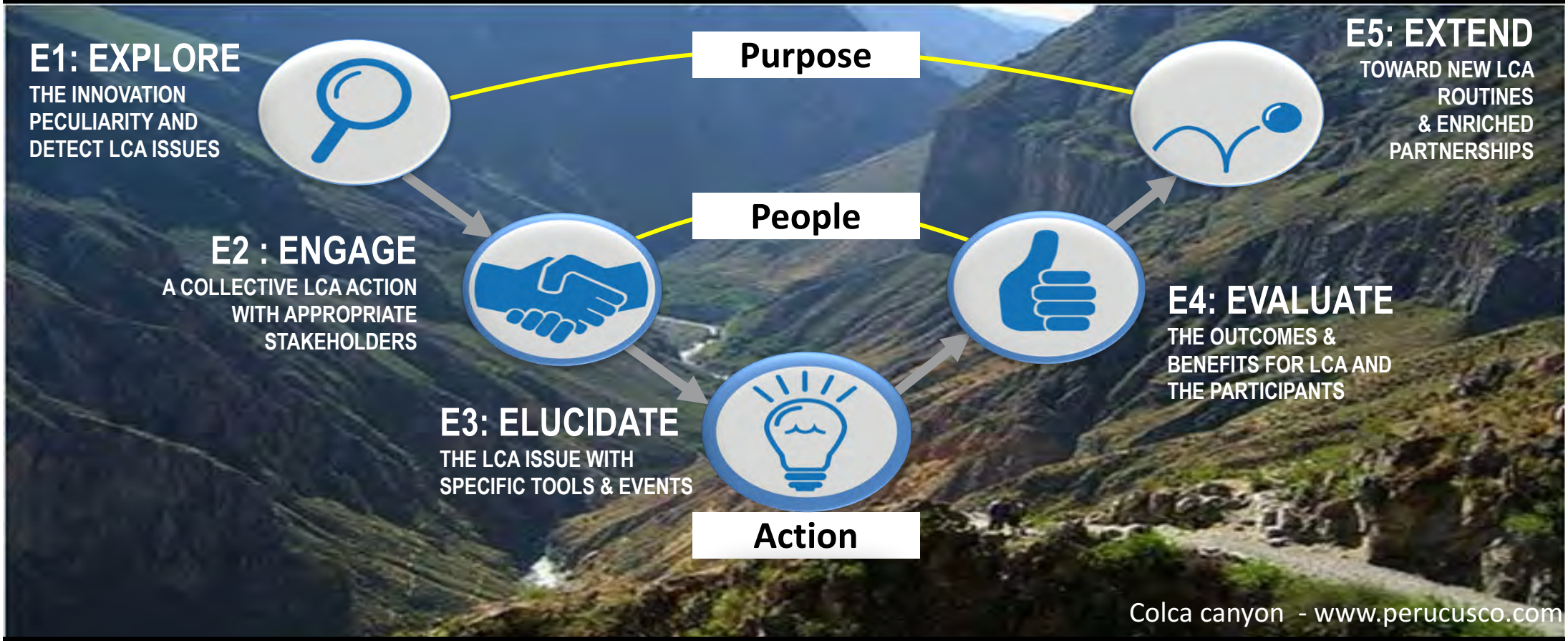
LCA EXPERT AND STAKEHOLDERS DISCUSSIONS

COLLABORATIVE LCA (CO-LCA) ORGANISATION WITH A 5E SCHEME



CO-LCA EXPERIMENTATIONS AND COLLABORATIVE TOOLS ADAPTATION

MOREL & AGGERI @SETAC 2014

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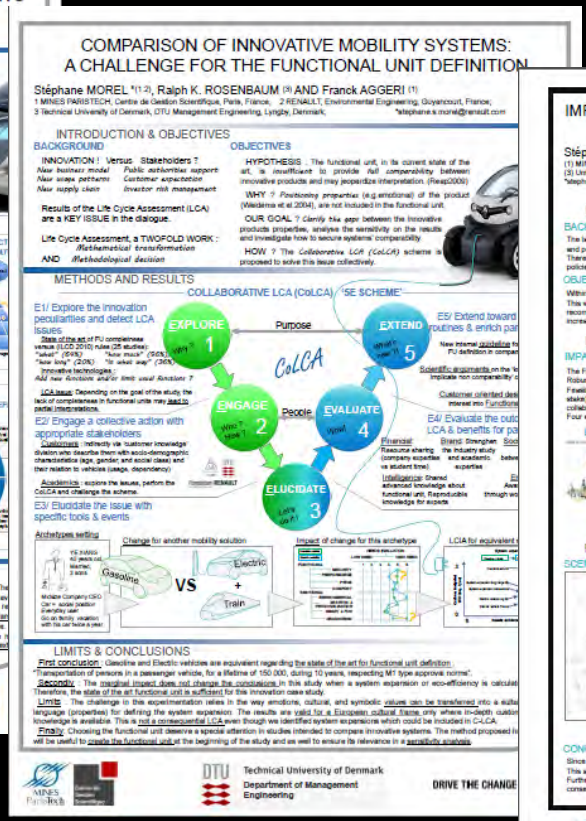
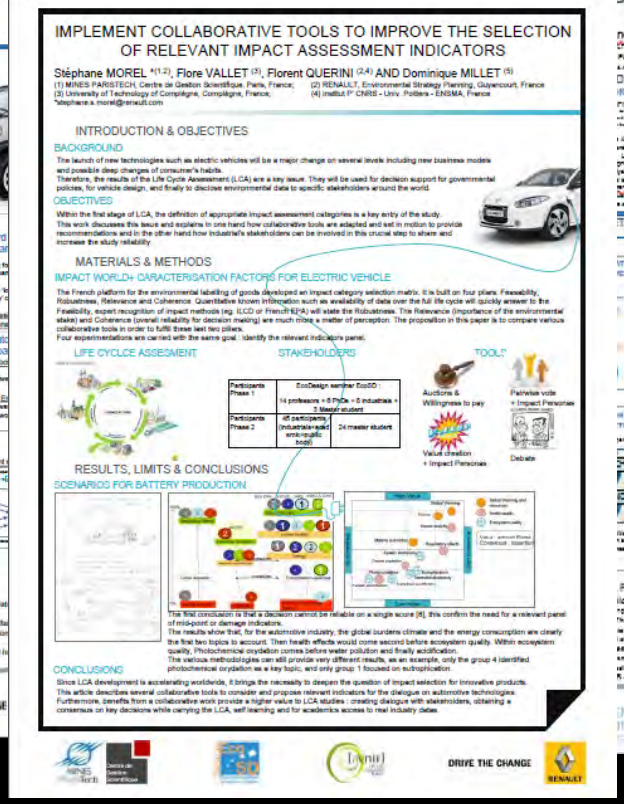
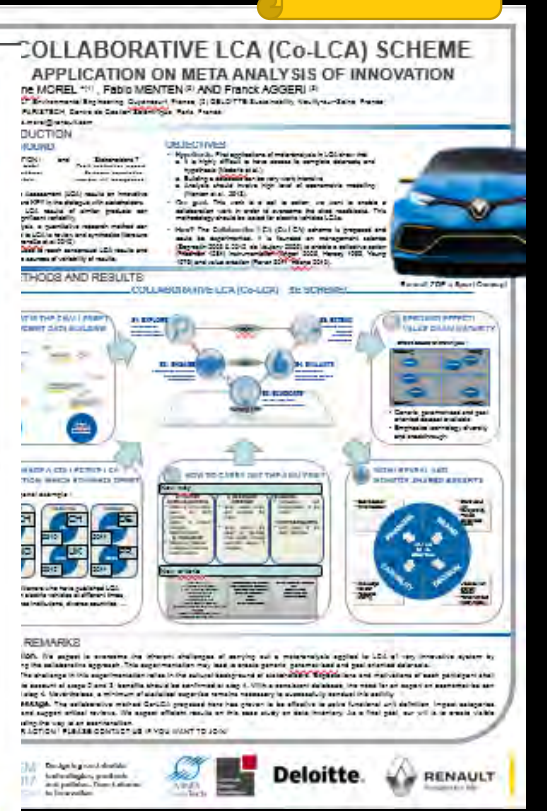
CO-LCA EXPERIMENTATIONS AND COLLABORATIVE TOOLS ADAPTATION

MOREL & AGGERI

See POSTER LCM2017







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OK, WHAT'S NEXT ?

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NEW CHALLENGES, NEW BUSINESS MODELS

Somewhere between Myth …

http://nissannews.com/

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NEW CHALLENGES, NEW BUSINESS MODELS

Rational Myth
Hatchuel A., Le Masson P., Weil B. (2002)

Somewhere between Myth … and Reality

RECycled Materials

RECYCLED METALS & POLYMERS

MORE THAN 30% OF CAR WEIGHT

REManufacture Parts

MORE THAN 30 000 ENGINES & GEARBOX PER YEAR

AWARD FOR CHOISY LE ROY PLANT

REThink Products

Totem : Found rising 1,35 M€

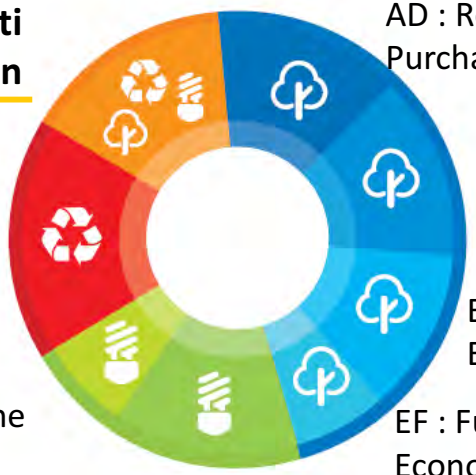
Vulog : Found rising 17,5 M€

TRANSITION : CIRCULAR ECONOMY – 100 COMMITMENTS INCLUDING LCA

AFEP association française des entreprises privées, 2017

All levers of circular economy are activated

MA : Multi Actor Action



AD : Responsible Purchasing

EC : Eco Design

EIT : Industrial Ecology

EF : Functional Economy

CR : Responsible Consumption

ADU : Usage Life Time

R : Recycling

And … 9 Companies took LCA commitments

CRÉDIT AGRICOLE · elis · fnac

Kingfisher · SAINT-GOBAIN · Schneider Electric

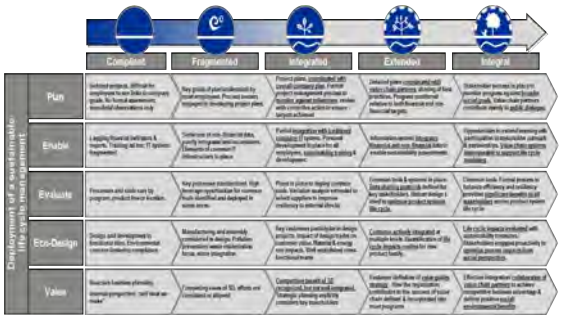
legrand · vallourec · ingenico GROUP

CREATE AN ECO TRANSITION – ON GOING EXPERIMENTATION BASED ON COLLABORATIVE LIFE CYCLE ACTIVITIES (CO-LCA)

DISCOVERY DRIVEN

(Sosna et al., 2010 ; McGrath, 2010)

ECO TRANSITION MATRIX

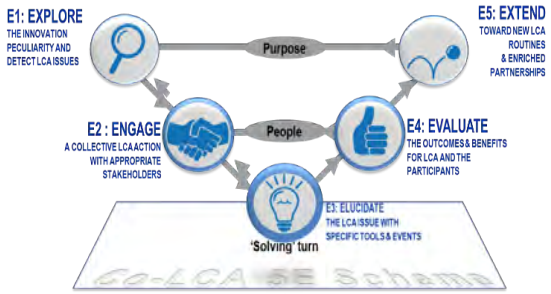


ENVISION THE TRANSITION #1

COLLECTIVE ACTION

(Osterwalder, 2010 ; Hatchuel, 2000)

Co-LCA 5E SCHEME

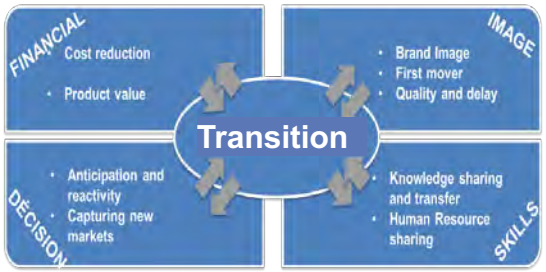


IMPLEMENT COLLABORATION #2

CREATING SHARED VALUE

Kramer, M. R., & Porter, M. E. (2011)

SHARED BENEFITS ASSESSMENT

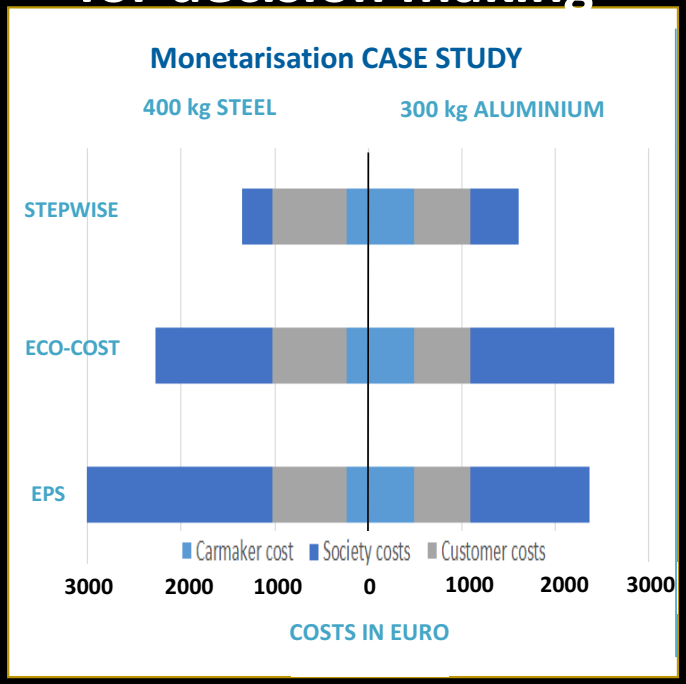


CREATE SHARED BENEFITS #3

#4 NEW BUSINESS MODEL INTEGRATION & SCALE UP

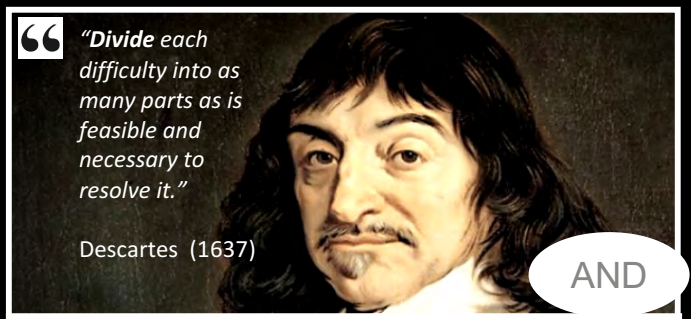
OUR EXPECTATION FROM LIFE CYCLE EXPERTS COMMUNITY RELIABLE AND EASY TO USE TOOLS FOR :

MONETARIZATION for decision making



REGIONAL FOCUS for more accuracy

FROM « WHAT » TO « HOW »



AND

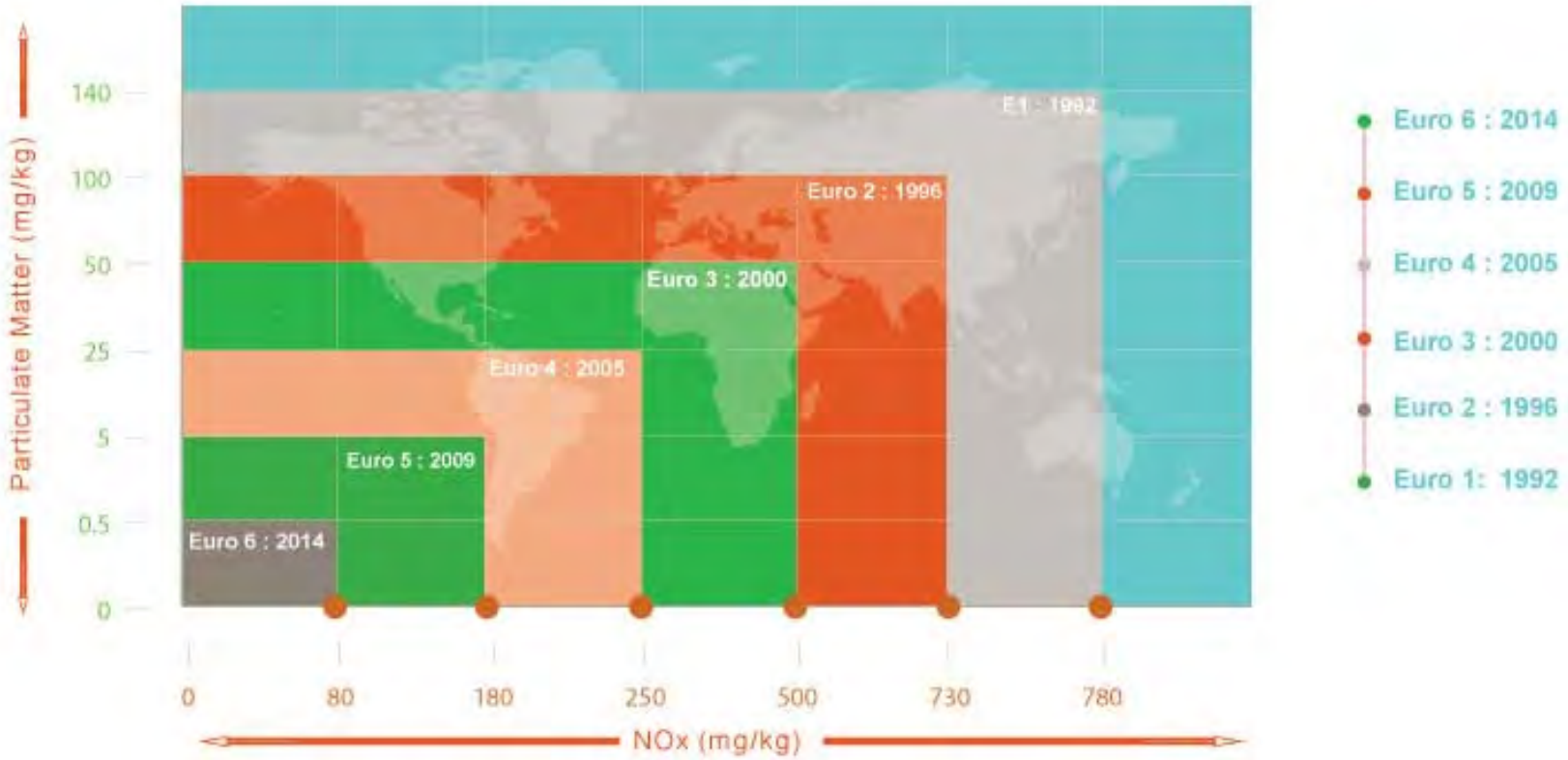
To know more:

Dr. Stephane MOREL
Stephane.s.Morel@Renault.com

Co-LCA_Net

HISTORY OF EURO EMISSIONS STANDARDS

DIESEL PASSENGER CARS



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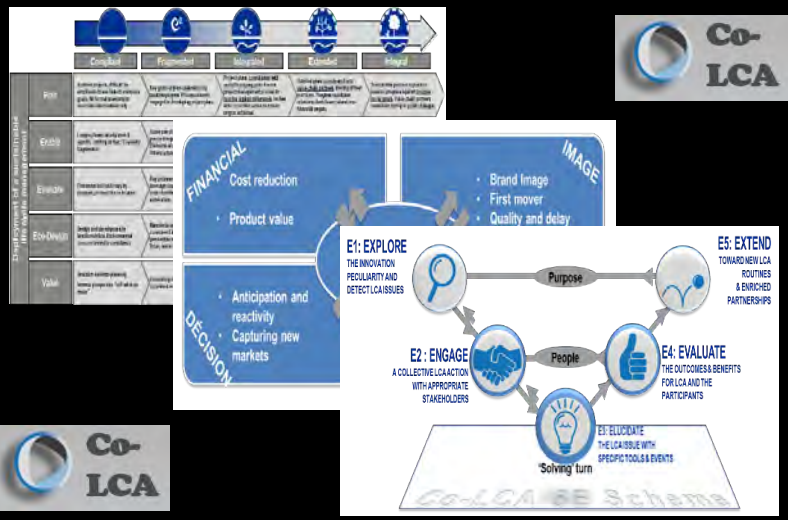
We don't stop playing because we grow old;
we grow old because we stop playing.

George Bernard Shaw



If you want to know more …
If you want to take action …

@CoLCA_Net
@StephaneSMorel
Stéphane.s.Morel@Renault.com

Aknowledgement:

COLLABORATIVE LIFE CYCLE ACTIVITIES CREATES NEW TANGIBLE BENEFITS ADDITIONAL AND SHARED

COLLABORATIVE LCA TO SUPPORT A TRANSITION
EXPAND LIFE CYCLE THINKING ORGANISATIONAL MATURITY LEVELS

MOREL (2014), Collaborative Life Cycle Activites
LALOUX (2014), Reinventing organization
WILBER (2008), Le livre de la Vision Intégrale

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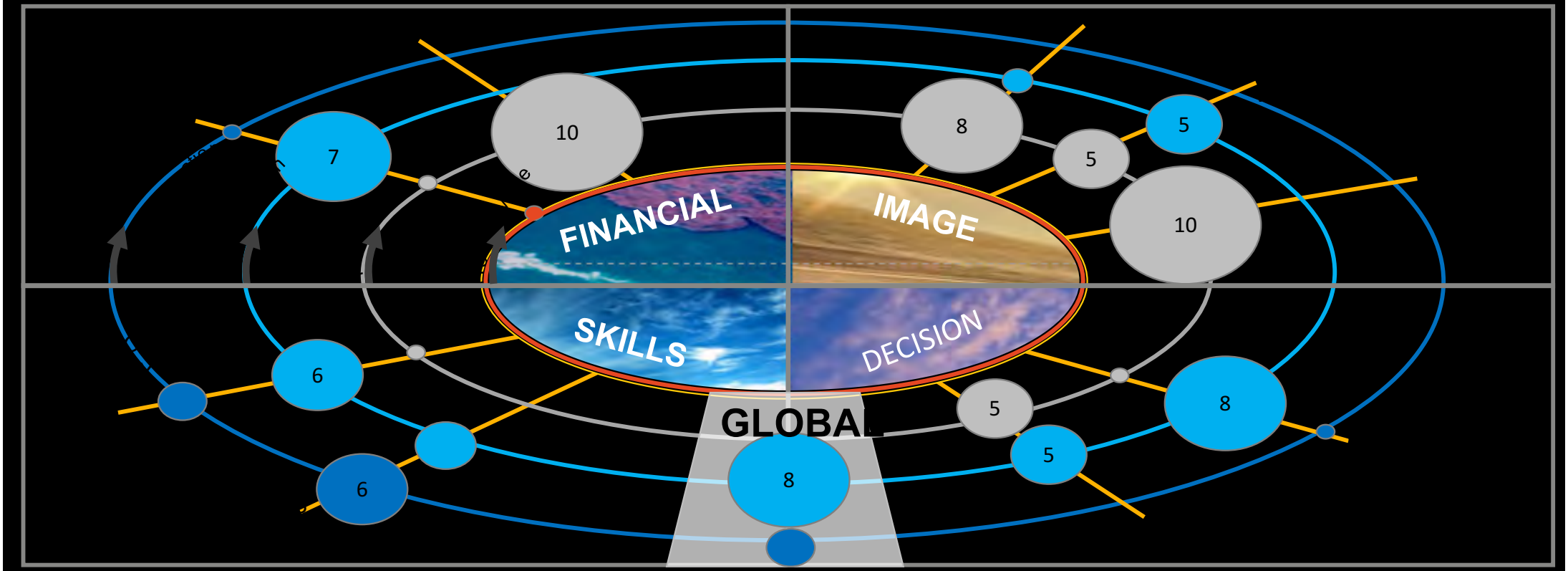
MANAGEMENT X MATURITY = ECOTRANSITION MATRIX

Deployment of a sustainable life cycle management	Compliant	Fragmented	Integrated	Extended	Integral
Plan	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, coordinated with overall company plan. Formal project management process to monitor against milestones, review with corrective action to ensure targets achieved	Detailed plans coordinated with value chain partners, sharing of best practices. Progress monitored relative to both financial and non-financial targets;	Stakeholder process in place to monitor progress against broader social goals. Value chain partners contribute openly to public dialogue.
Enable	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 integration with traditional company IT system. Personal development in place for all employees, sustainability training & development.	Information system integrates financial and non- financial data to enable sustainability assessments.	Opportunities to extend learning with participation in stakeholder outreach & partnerships. Value chain systems interoperable to support life cycle modeling
Evaluate	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 significant benefits to all stakeholders across product system life cycle
Eco-Design	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 life 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	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 value guides strategy . How the organization contributes to the success of value chain defined & incorporated into most programs	Effective integration/ collaboration of value chain partners to achieve competitive business advantage & deliver positive social/ environmental benefits

MOREL (2015) LCM Congress, UNEP/SETAC CMM (2011)

COLLABORATIVE LCA CREATE NEW AND SHARED BENEFITS
ASSESSMENT OF A LCA RESEARCH NETWORK

SCORE LCA



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THE ROLE OF LCM IN THE IMPLEMENTATION OF CIRCULAR ECONOMY IN BUSINESSES

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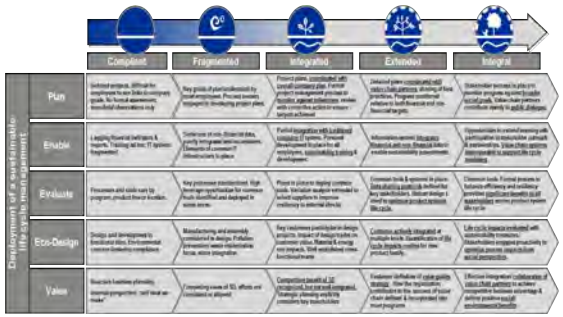
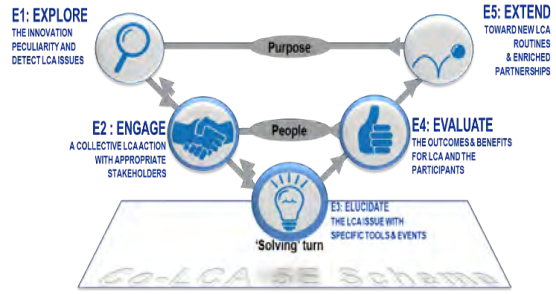
CREATE AN ECO TRANSITION
BASED ON COLLABORATIVE LIFE CYCLE ACTIVITIES (CO-LCA)

ECO TRANSITION MATRIX



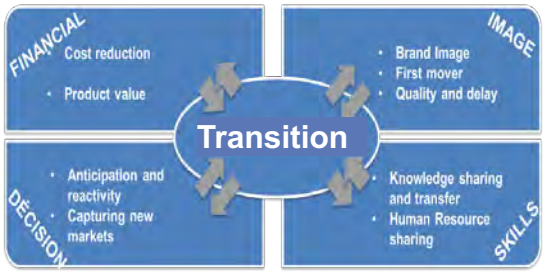
ENVISION THE TRANSITION #1

Co-LCA 5E SCHEME



IMPLEMENT COLLABORATION #2

SHARED BENEFITS ASSESSMENT



CREATE SHARED BENEFITS #3

#4 NEW BUSINESS MODEL INTEGRATION & SCALE UP

CIRCULAR ECONOMY

http://nissannews.com/

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CIRCULAR ECONOMY

RECYCLED METALS & POLYMERS

MORE THAN 30% OF CAR WEIGHT

MORE THAN 30 000 ENGINES & GEARBOX PER YEAR

AWARD FOR CHOISY LE ROY PLANT

SETTING NEW BUSINESS MODELS

TRANSITION : CIRCULAR ECONOMY – 100 COMMITMENTS

WWF®

ADEME
Agence de l'Environnement et de la Maîtrise de l'Energie

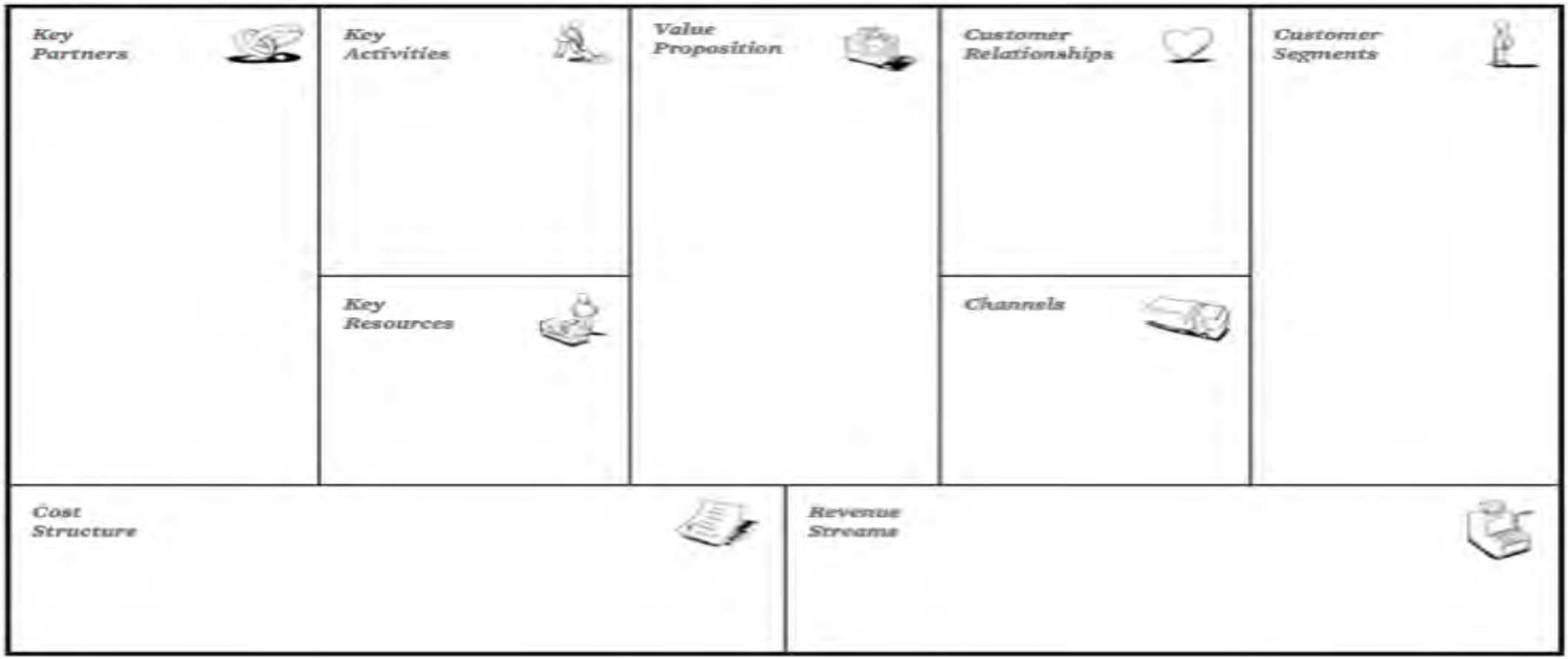
All levers of circular economy are activated

And … 9 Companies took LCA commitments

CRÉDIT AGRICOLE · elis · fnac · Kingfisher · SAINT-GOBAIN · Schneider Electric · legrand · vallourec · ingenico GROUP

TRANSITION : CIRCULAR ECONOMY – MULTI ACTOR ACTION

The Business Model Canvas



ECO-INNOVATION AND NEW BUSINESS ARE

WHY DISCOVERY DRIVEN ?

“

by remaining what we are.

Max DePree

lionel-soubeyran.fr/

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EXPANDING LIFE CYCLE THINKING
ORGANISATIONAL MATURITY LEVELS

Licence to produce → **Collaborating within the organisation** → **Collaborating with the stakeholders**

MOREL (2014), Collaborative Life Cycle Activites
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MOREL (2015) LCM Congress, UNEP/SETAC CMM (2011)

PANEL AND METHODOLOGY

PANEL

FAVI

ALSTOM

POLYNT COMPOSITES

HELIOPAC

HAPPY CHIC

LE RELAIS-MÉTISSE

Date:

May-June 2016

Support:

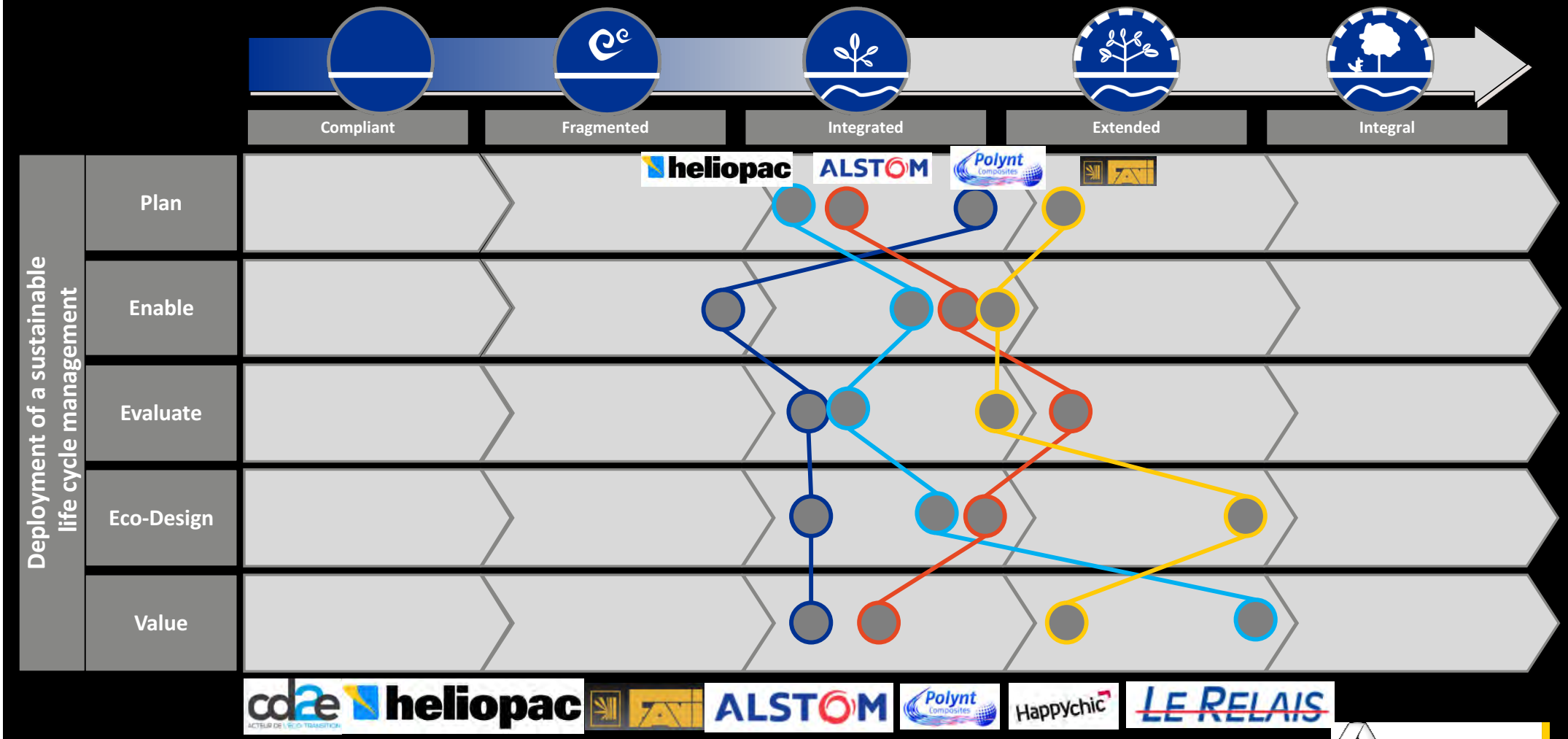
ECOTRANSITION MATRIX

Commanditaires:

CD2E

GT Clients-Fournisseurs

CD2E WORKSHOP – ON GOING SELF EVALUATION



ECOTRANSITION MATRIX

REVEAL

DISCUSS

PROVIDE

BENCHMARK

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ECO-INNOVATION AND NEW BUSINESS ARE

“COLLECTIVE ACTION NEEDS TO BE ORGANISED”
SEGRESTIN (2003)

chroniquesdelinvisible.wordpress.com

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ECO-INNOVATION AND NEW BUSINESS ARE

RENAULT
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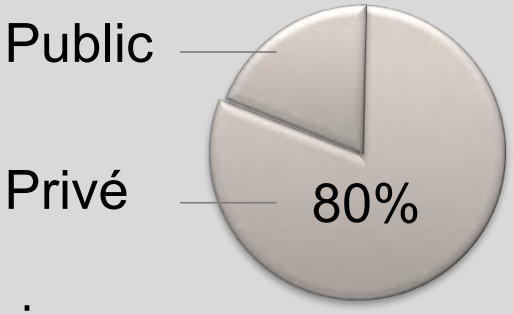
CREATE NEW TANGIBLE BENEFITS ADDITIONAL AND SHARED

PANEL AND METHODOLOGY

SCORE LCA

PANEL



Expérience :

-
-
-

+1 / +2

Date:

9, 10, 11 mai 2016

Support:

Web and phone meetings

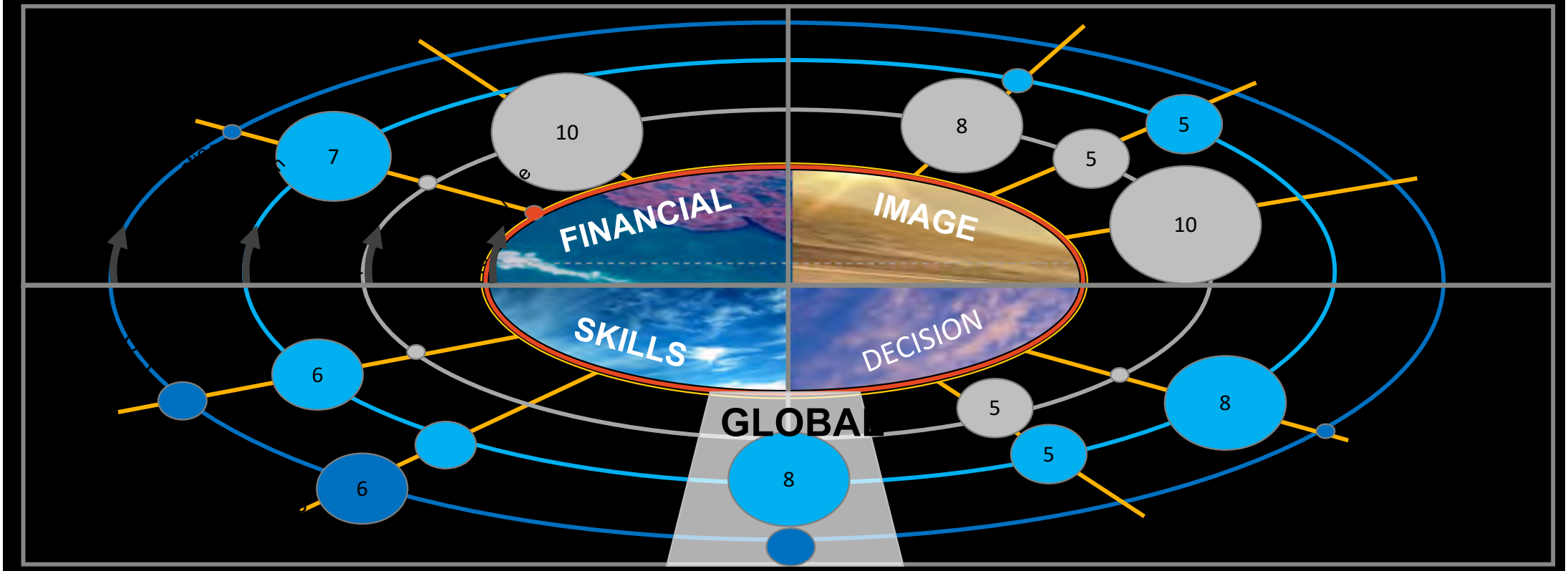
Comissioners :

TOTAL · EDF · ENGIE · VEOLIA ENVIRONNEMENT · RENAULT · SAINT-GOBAIN · IFP Energies nouvelles · ArcelorMittal · SOLVAY · SNCF · CSTB le futur en construction

RENAULT Passion for life

CREATE NEW AND SHARED BENEFITS
ASSESSMENT OF A LCA RESEARCH NETWORK

SCORE LCA



Members of SCORE LCA

Co-founders: TOTAL, EDF, ENGIE, RENAULT, SAINT-GOBAIN, VEOLIA, RECORD

Partner members: CSTB, IFP Energies nouvelles, SOLVAY, SNCF, ALSTOM, ArcelorMittal

CREATE NEW AND SHARED BENEFITS
LCA RESEARCH NETWORK ASSESSMENT

LEARNINGS

For all members SCORELCA association fulfill its main goals =	*V1.1 COST REDUCTION* *V4.1 KNOWLEDGE SHARING & TRANSFER*	And more … *V3.1 DECISION : ANTICIPATION & REACTIVITY* *V4.2 RESOURCE CAPABILITY*
Discrepencies between members	*V2.2 QUALITY & DELAY* V3.2 NEW MARKETS	Workshop to share between members
A huge consensus between the members on what the association does NOT	*V1.2 VALUE CREATION FOR THE PRODUCT* *V2.3 VALUE CREATION FOR THE BRAND*	

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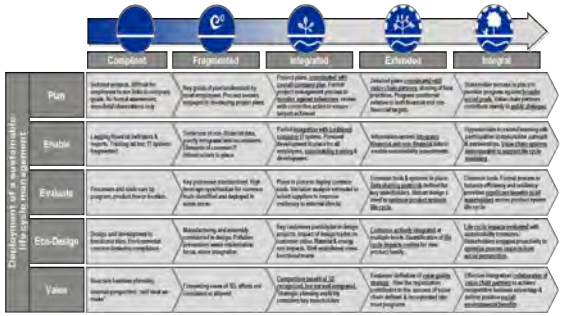
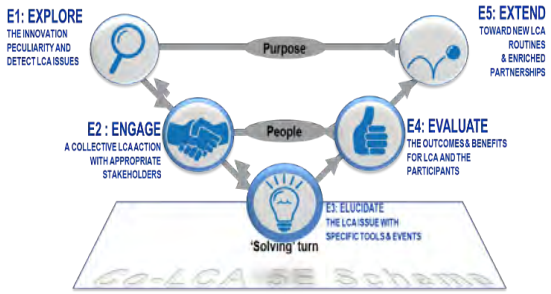
CREATE AN ECO TRANSITION
BASED ON COLLABORATIVE LIFE CYCLE ACTIVITIES (CO-LCA)

ECO TRANSITION MATRIX



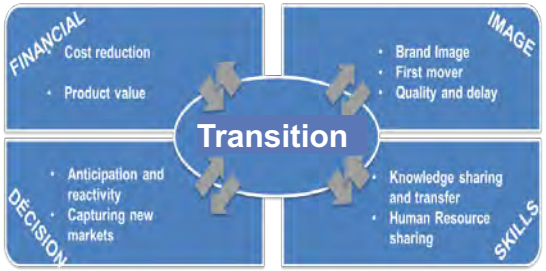
ENVISION THE TRANSITION #1

Co-LCA 5E SCHEME



IMPLEMENT COLLABORATION #2

SHARED BENEFITS ASSESSMENT



CREATE SHARED BENEFITS #3

#4 NEW BUSINESS MODEL INTEGRATION & SCALE UP

Thanks

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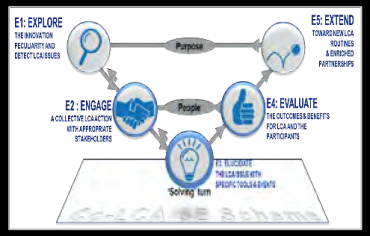
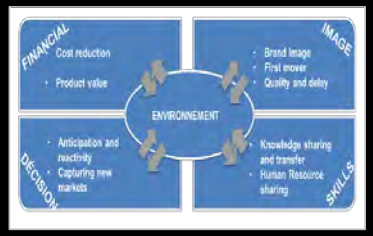
Passion for life

ECO-INNOVATION AND NEW BUSINESS TRANSITION

> We don't stop playing because we grow old;
> we grow old because we stop playing.
>
> George Bernard Shaw





If you want to know more …
If you want to take action …

@CoLCA_Net

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Aknowledgement:

Déployer le “LEGRAND WAY for ecoconscious design” consistant par exemple à finaliser la mise en oeuvre de l’utilisation de l’Analyse du Cycle de Vie (ACV) dans la phase de définition des concepts produits

Enrichir et promouvoir la transparence sur les informations de « Circularité » des produits avec un objectif de 75 % de notre chiffre d’affaires réalisé avec des produits bénéficiant d’une analyse de cycle de vie complète et d’instructions précises de gestion de fin de vie du produit, l’une et l’autre accessibles à nos clients et partenaires de manière digitale et 24/7

Mettre en oeuvre la démarche d’éco-innovation basée sur l’analyse de cycle de vie

Déploiement d’un outil détaillé d’analyse du cycle de vie (ACV)
Construire avec un prestataire spécialisé un outil d’analyse de cycle de vie des produits de l’entreprise capable de prendre en compte la variété des process et des sites de production. Cet outil en cours de finalisation est destiné à qualifier en amont les produits en développement selon une grille d’évaluation prenant en compte une dizaine d’impacts. Objectif : 10 produits clés et 5 projets de R&D d’ici fin 2018

ECO-INNOVATION AND NEW BUSINESS

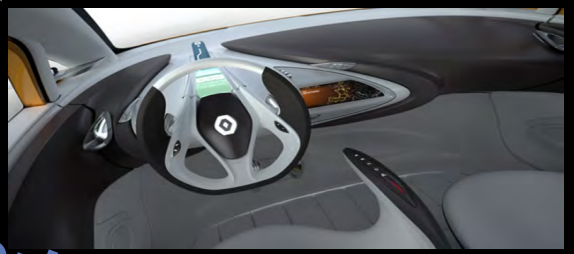
Service economy

Additional service

Circular economy

Object oriented

Territory oriented



Material Eco Efficiency

Additional function

Industrial Ecology

RENAULT
Passion for life