



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



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

DISCOVERING

DESILLUSION

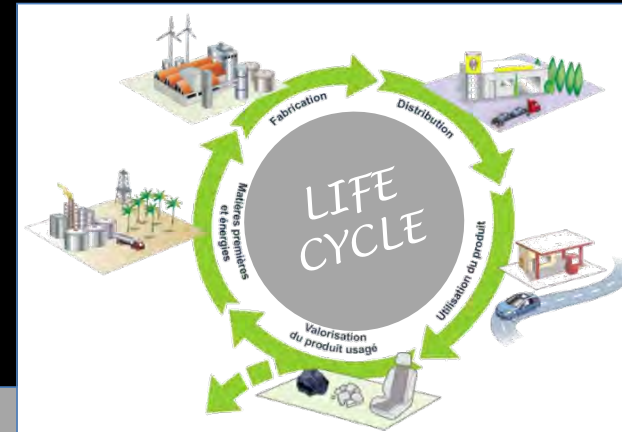
IMPROVMENT

NEW
CHALLENGE

DISCOVERING, FROM 1970 TO 2010



1970



1980

1990

2000

2010



IMPROVMENT ... MAJOR USAGES OF LIFE CYCLE ASSESSMENT

CARBON FOOTPRINT

KPI Group 2010-2016

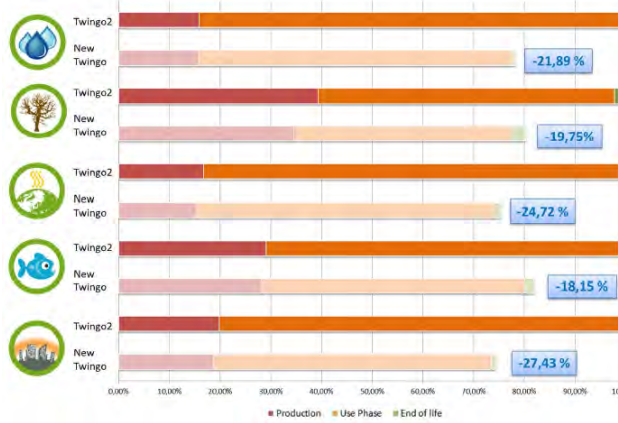


CLIMAT

EMPREINTE CARBONE
-3% / AN

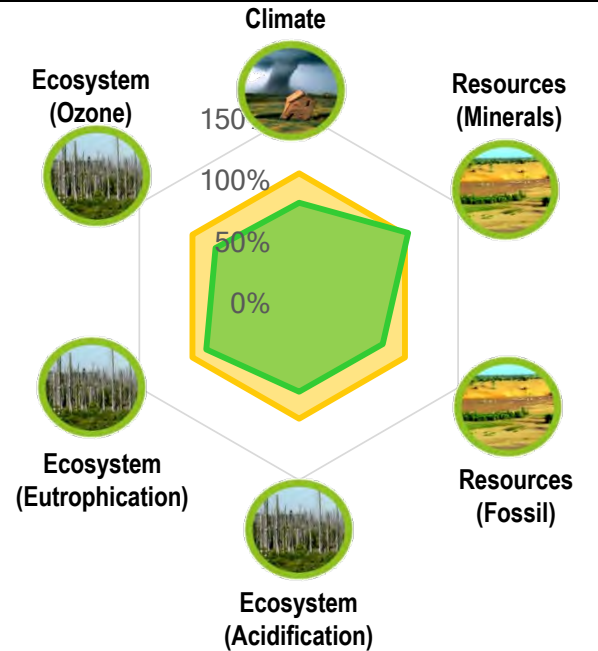
PRODUCT IMPROVMENT

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

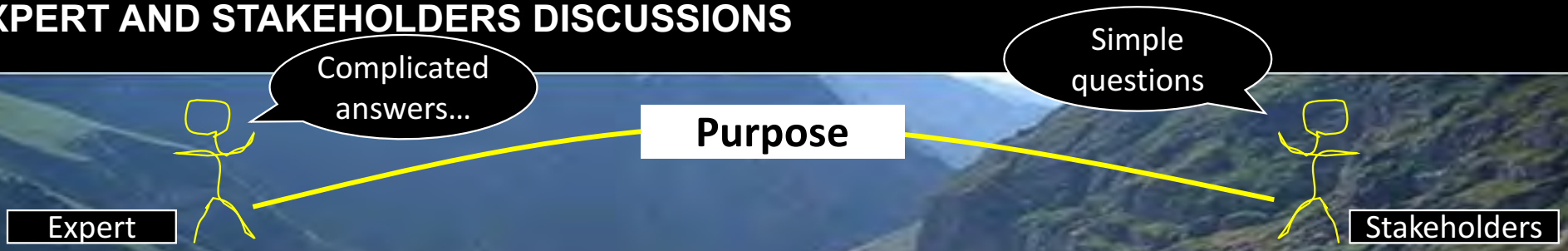


KEY DECISION : ENGAGE A DIALOGUE WITH OUR STAKEHOLDERS



Colca canyon - www.perucusco.com

LCA EXPERT AND STAKEHOLDERS DISCUSSIONS



Colca canyon - www.perucusco.com

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

E1: EXPLORE

THE INNOVATION
PECULIARITY AND
DETECT LCA ISSUES



Purpose

E5: EXTEND

TOWARD NEW LCA
ROUTINES
& ENRICHED
PARTNERSHIPS



E2 : ENGAGE

A COLLECTIVE LCA ACTION
WITH APPROPRIATE
STAKEHOLDERS



People

E4: EVALUATE

THE OUTCOMES &
BENEFITS FOR LCA AND
THE PARTICIPANTS



E3: ELUCIDATE

THE LCA ISSUE WITH
SPECIFIC TOOLS & EVENTS



Action

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CO-LCA EXPERIMENTATIONS AND COLLABORATIVE TOOLS ADAPTATION

MOREL & AGGERI @SETAC 2014

Customer survey

Functional unit definition ?

Journey travel

Personas

Motivation matrix

Critical review ?

Choice of impact categories ?

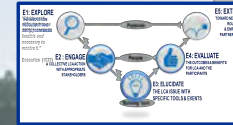
Pairwise votes

Value choices

CALL TO ACTION

Meta Analysis

Data inventories ?



CO-LCA EXPERIMENTATIONS AND COLLABORATIVE TOOLS ADAPTATION

MOREL & AGGERI

See
POSTER
LCM2017

COLLABORATIVE LCA (Co-LCA) SCHEME A TRANSITION FROM ASSESSMENT TO SHARED BENEFITS

Stéphane MOREL ^(1,2) AND Franck AGGERI ⁽¹⁾
¹ MINES PARIS TECH, Centre de Gestion Scientifique, Paris, France; ² RENAULT, Environmental Engineering, Guyancourt, France; ³ Aggeri@minesparistech.com

INTRODUCTION & OBJECTIVES
BACKGROUND INNOVATION AND Stakeholders? Public customer request...
OBJECTIVES Hypothesis: Conducting LCA of innovative products offer a large range of new decisions. They are often subjective & based on individual experience (Lloyd and Rice 2007) and may jeopardize the study and its interpretation in many years (Bainbridge 2009). However, a critical amount (Warner 2006) of stakeholders (Pitt 2003) is achieved and can be addressed to assess critical LCA decisions in a collaborative way.
HOW TO PROCEED TOWARDS THE BEST DECISION? OUR GOAL: 1 year to enable this collaboration, solve key issues of innovative products LCA and reveal the shared benefits.
HOW TO ENGAGE A COLLECTIVE LCA ACTION? THE REFINED SCHEME Life Cycle Assessment of a TROPICAL LIGHT: Multidisciplinary Action
METHODS AND RESULTS COLLABORATIVE LCA (Co-LCA) "SE SCHEME"
LIMITS & CONCLUSIONS Conclusion: We overcome the inherent challenges of carrying an LCA of very innovative system by implementing the right key decision. The...
DRIVE THE CHANGE SCIENCE ACROSS BRIDGES, BORDERS AND BOUNDARIES

COMPARISON OF INNOVATIVE MOBILITY SYSTEMS: A CHALLENGE FOR THE FUNCTIONAL UNIT DEFINITION

Stéphane MOREL ^(1,2), Ralph K. ROSENBAUM ⁽³⁾ AND Franck AGGERI ⁽¹⁾
¹ MINES PARIS TECH, Centre de Gestion Scientifique, Paris, France; ² RENAULT, Environmental Engineering, Guyancourt, France; ³ Technical University of Denmark, DTU Management Engineering, Lyngby, Denmark; ⁴ stephane.morel@minesparistech.com

INTRODUCTION & OBJECTIVES
BACKGROUND INNOVATION Versus Stakeholders? New business model...
OBJECTIVES Hypothesis: The functional unit, in the current state of the art, is insufficient to provide full comparability between innovative products and may jeopardize interpretation (Bainbridge 2009).
HOW TO PROCEED TOWARDS THE BEST DECISION? OUR GOAL: 1 year to enable this collaboration, solve key issues of innovative products LCA and reveal the shared benefits.
METHODS AND RESULTS COLLABORATIVE LCA (Co-LCA) "SE SCHEME"
LIMITS & CONCLUSIONS First conclusion: Gasoline and Electric vehicles are equivalent regarding the state of the art for functional unit definition.
DRIVE THE CHANGE Technical University of Denmark, Department of Management Engineering

IMPLEMENT COLLABORATIVE TOOLS TO IMPROVE THE SELECTION OF RELEVANT IMPACT ASSESSMENT INDICATORS

Stéphane MOREL ^(1,2), Flore VALLET ⁽³⁾, Florent QUERINI ^(2,4) AND Dominique MILLET ⁽⁵⁾
¹ MINES PARIS TECH, Centre de Gestion Scientifique, Paris, France; ² RENAULT, Environmental Strategy Planning, Guyancourt, France; ³ University of Technology of Compiègne, Compiègne, France; ⁴ Institut P' CNRS - Univ. Poitiers - ENSMA, France; ⁵ stephane.morel@minesparistech.com

INTRODUCTION & OBJECTIVES
BACKGROUND The launch of new technologies such as electric vehicles will be a major change on several levels including new business models and possible deep changes of consumer's habits.
OBJECTIVES Within the first stage of LCA, the definition of appropriate impact assessment categories is a key entry of the study.
MATERIALS & METHODS IMPACT PLATFORM: CHARACTERISATION FACTORS FOR ELECTRIC VEHICLE
RESULTS, LIMITS & CONCLUSIONS SCENARIOS FOR BATTERY PRODUCTION
CONCLUSIONS Since LCA development is accelerating worldwide, it brings the necessity to design the question of impact selection for innovative products.
DRIVE THE CHANGE

COLLABORATIVE LCA (Co-LCA) SCHEME APPLICATION ON META ANALYSIS OF INNOVATION

Stéphane MOREL ⁽¹⁾, Fabio MENTEN ⁽²⁾ AND Franck AGGERI ⁽³⁾
¹ Environmental Engineering, Guyancourt, France; ² IREB-UTP, Université de Technologie de Poitiers, France; ³ Aggeri@minesparistech.com

INTRODUCTION & OBJECTIVES
BACKGROUND INNOVATION AND Stakeholders? Public customer request...
OBJECTIVES Hypothesis: The application of meta-analysis in LCA...
METHODS AND RESULTS COLLABORATIVE LCA (Co-LCA) "SE SCHEME"
REMARKS LCA development is accelerating worldwide, it brings the necessity to design the question of impact selection for innovative products.
DRIVE THE CHANGE Deloitte, Renault



OK, WHAT'S NEXT ?



NEW CHALLENGES, NEW BUSINESS MODELS

Somewhere between Myth ...



Nissan Keynote Address at CES 2017

<http://nissannews.com/>

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

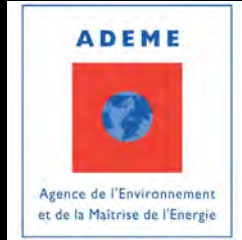
MORE THAN 30 000 ENGINES &
GEARBOX PER YEAR
AWARD FOR CHOISY LE ROY PLANT



REThink Products

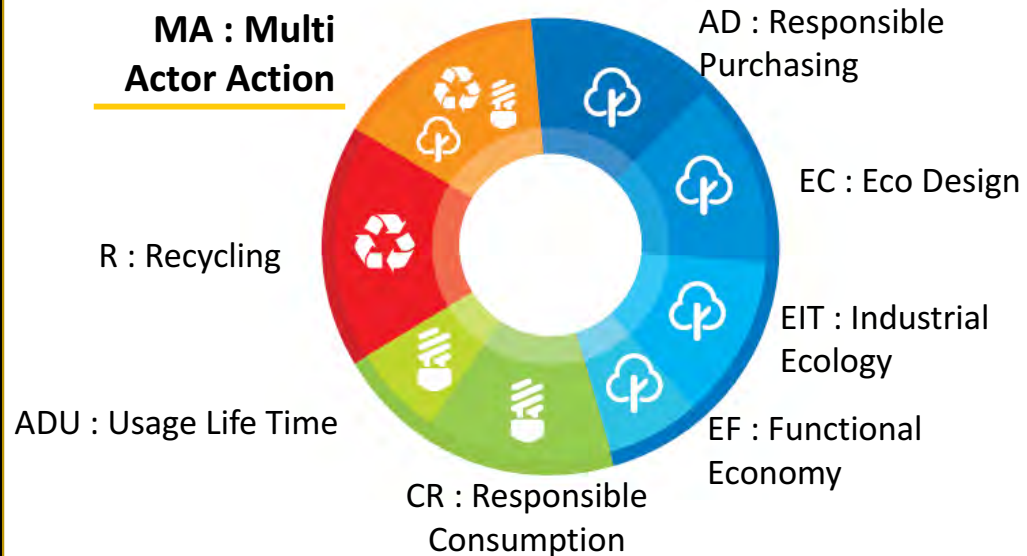
Totem : Found rising 1,35 M€
Vulog : Found rising 17,5 M€

TRANSITION : CIRCULAR ECONOMY – 100 COMMITMENTS INCLUDING LCA



AFEP association française des entreprises privées, 2017

All levers of circular economy are activated



And ... 9 Companies took LCA commitments



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

		Completed	Fragmented	Integrating	Extensive	Integrat
Development of a novel product: life cycle management	Plan	Initial project definition to determine the scope of the project, the business case, the financial objectives, the resources available	Key goals of the project are defined by the management. The project is managed by a dedicated team with a clear responsibility	Project goals, resources, and risks are defined. The project is managed by a dedicated team with a clear responsibility	Initial project definition and key goals are defined. The project is managed by a dedicated team with a clear responsibility	Final project definition and key goals are defined. The project is managed by a dedicated team with a clear responsibility
	Enable	Key goals of the project are defined by the management. The project is managed by a dedicated team with a clear responsibility	Key goals of the project are defined by the management. The project is managed by a dedicated team with a clear responsibility	Key goals of the project are defined by the management. The project is managed by a dedicated team with a clear responsibility	Key goals of the project are defined by the management. The project is managed by a dedicated team with a clear responsibility	Key goals of the project are defined by the management. The project is managed by a dedicated team with a clear responsibility
	Evaluate	Key goals of the project are defined by the management. The project is managed by a dedicated team with a clear responsibility	Key goals of the project are defined by the management. The project is managed by a dedicated team with a clear responsibility	Key goals of the project are defined by the management. The project is managed by a dedicated team with a clear responsibility	Key goals of the project are defined by the management. The project is managed by a dedicated team with a clear responsibility	Key goals of the project are defined by the management. The project is managed by a dedicated team with a clear responsibility
	Eco-Design	Key goals of the project are defined by the management. The project is managed by a dedicated team with a clear responsibility	Key goals of the project are defined by the management. The project is managed by a dedicated team with a clear responsibility	Key goals of the project are defined by the management. The project is managed by a dedicated team with a clear responsibility	Key goals of the project are defined by the management. The project is managed by a dedicated team with a clear responsibility	Key goals of the project are defined by the management. The project is managed by a dedicated team with a clear responsibility
	Value	Key goals of the project are defined by the management. The project is managed by a dedicated team with a clear responsibility	Key goals of the project are defined by the management. The project is managed by a dedicated team with a clear responsibility	Key goals of the project are defined by the management. The project is managed by a dedicated team with a clear responsibility	Key goals of the project are defined by the management. The project is managed by a dedicated team with a clear responsibility	Key goals of the project are defined by the management. The project is managed by a dedicated team with a clear responsibility

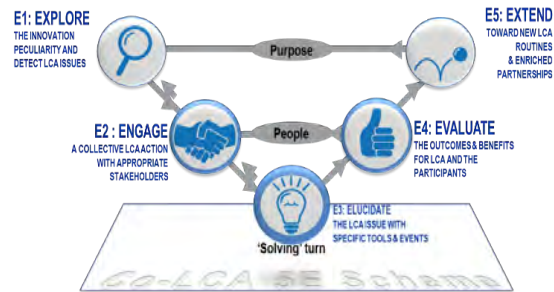
ENVISION THE TRANSITION

#1

COLLECTIVE ACTION

(Osterwalder, 2010 ; Hatchuel, 2000)

Co-LCA 5E SCHEME



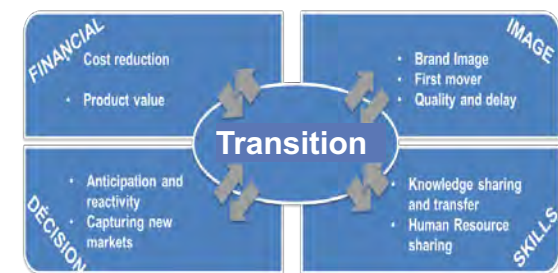
IMPLEMENT COLLABORATION

#2

CREATING SHARED VALUE

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

SHARED BENEFITS ASSESSMENT



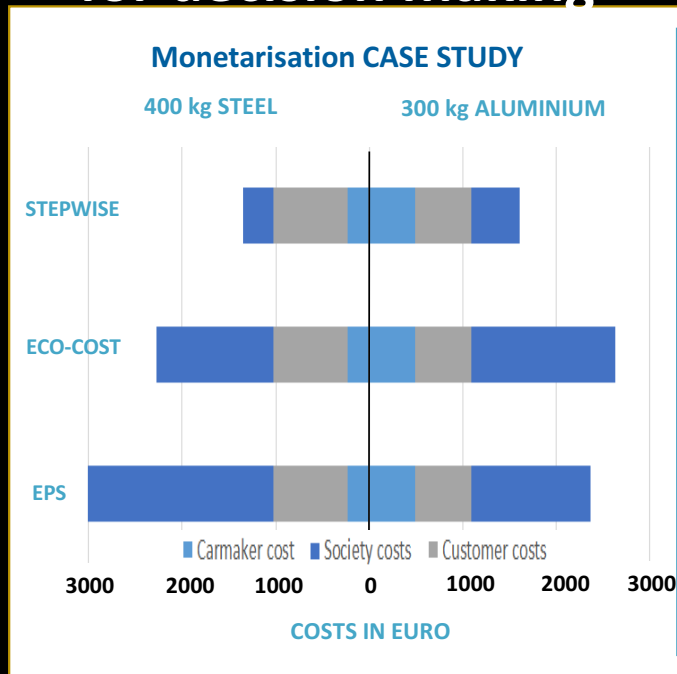
CREATE SHARED BENEFITS

#3

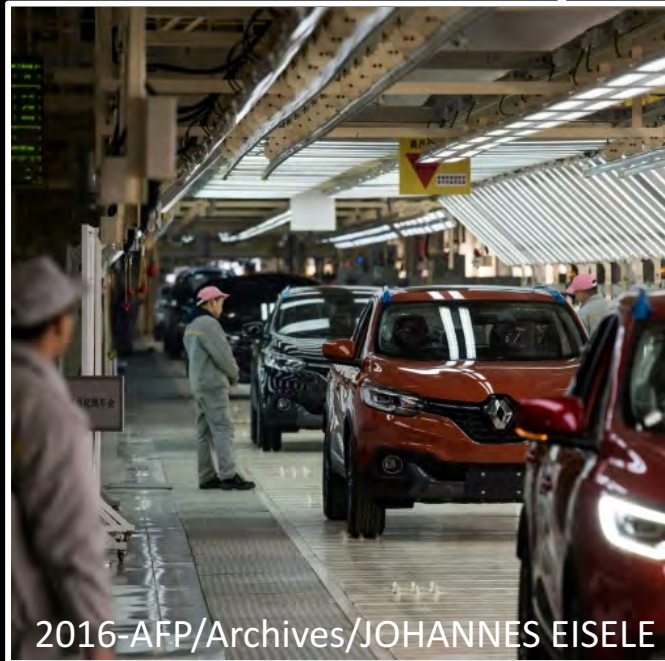
#4 NEW BUSINESS MODEL INTEGRATION & SCALE UP

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 »

“Divide each difficulty into as many parts as is feasible and necessary to resolve it.”
Descartes (1637)

AND

“Collective action needs to be **organised**”
Segrestin (2003)

PRECEPTA STRATEGIQUES

xerfi Canal RFG

GRAN TURISMO® 6
THE REAL DRIVING SIMULATOR

Thank you for
your attention!



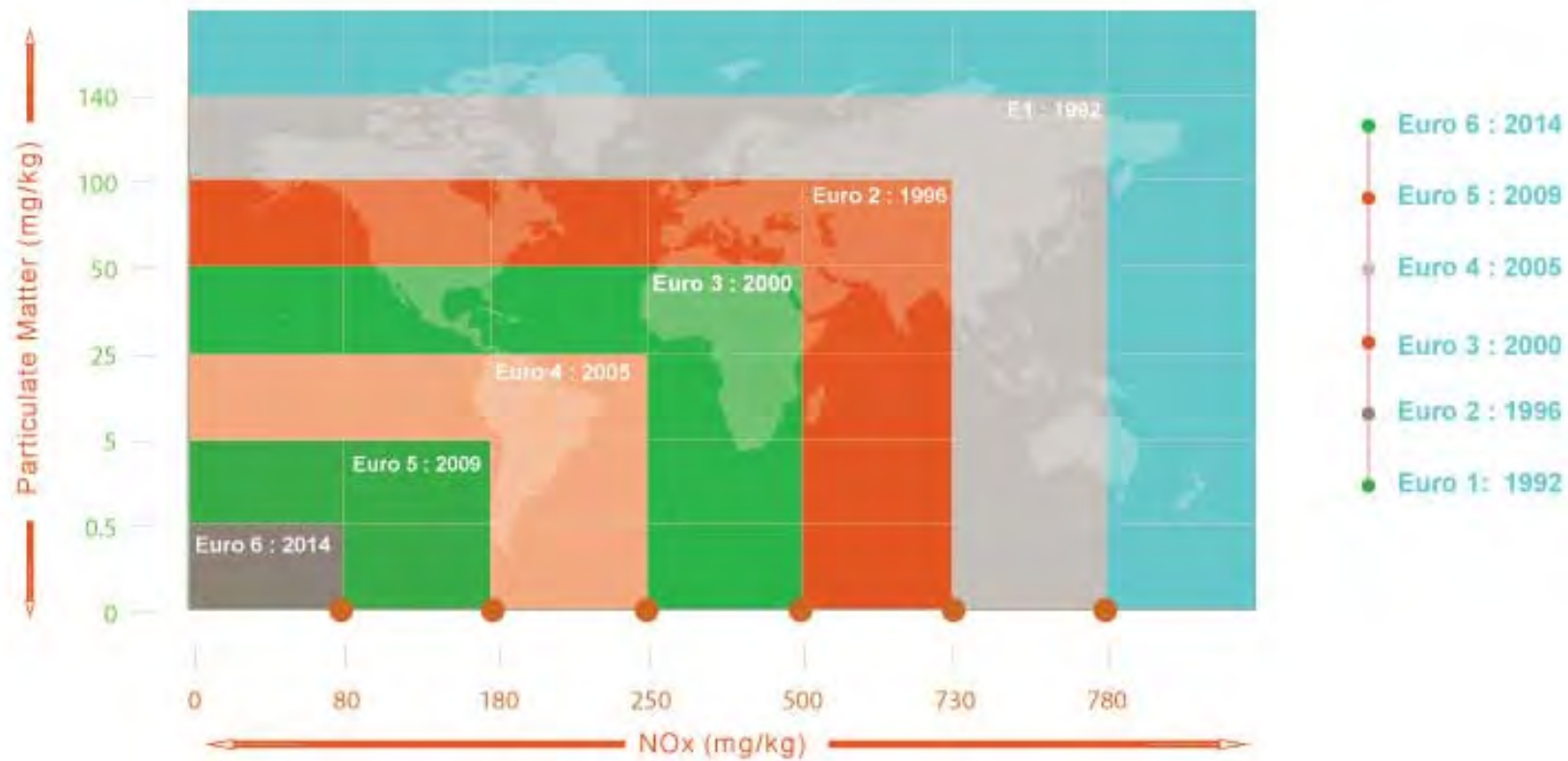
To know more:

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



Co-LCA_Net

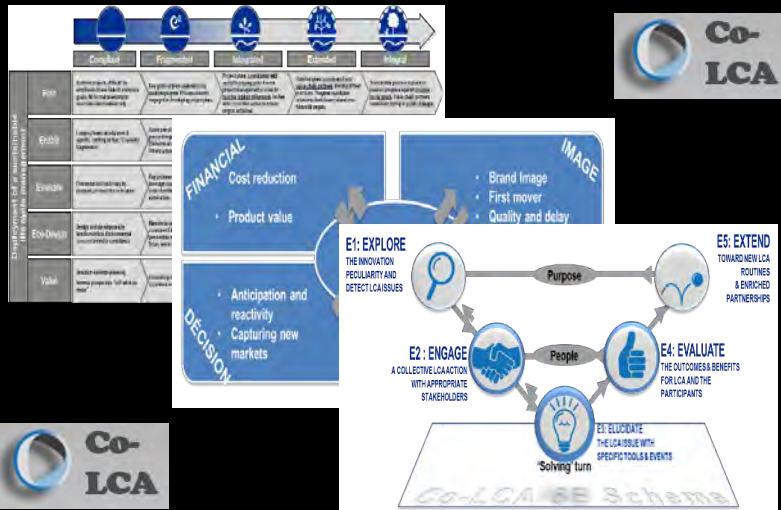
HISTORY OF EURO EMISSIONS STANDARDS DIESEL PASSENGER CARS





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








Compliant **Fragmented** **Integrated** **Extended** **Integral**



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

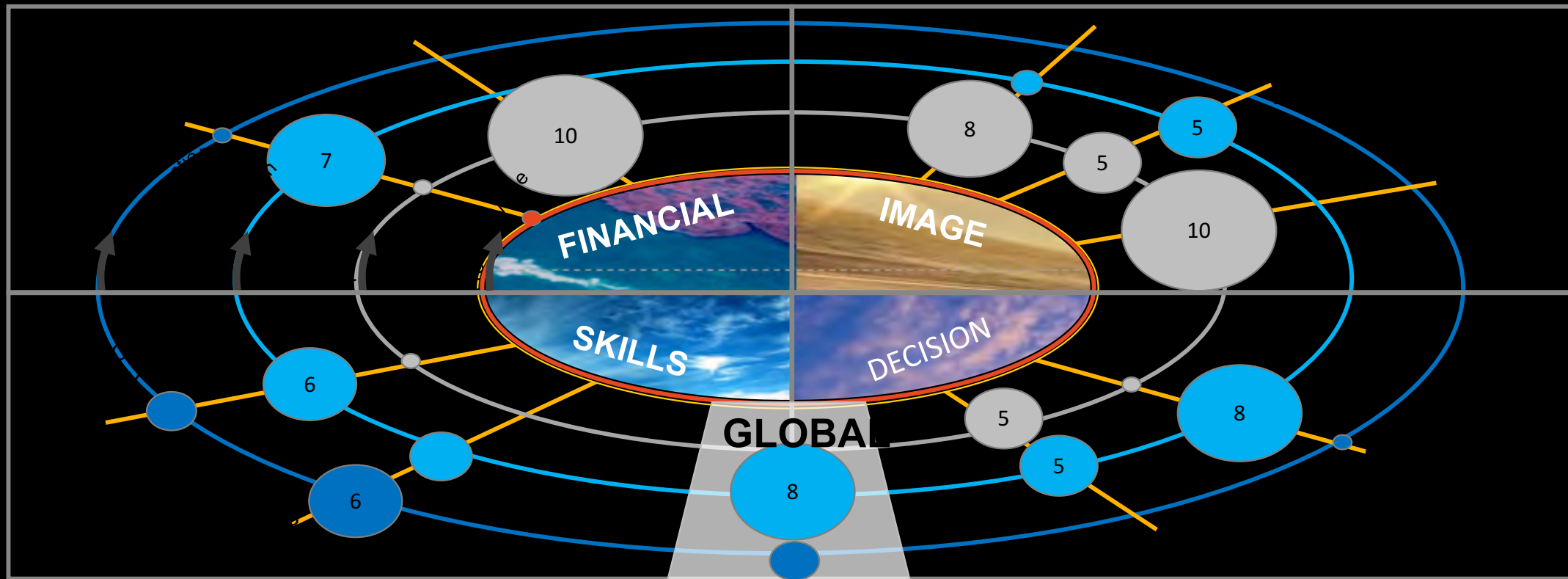
MANAGEMENT X MATURITY = ECOTRANSITION MATRIX

						
		Compliant	Fragmented	Integrated	Extended	Integral
Deployment of a sustainable life cycle management	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 <u>overall company plan</u> . Formal project management process to <u>monitor against milestones</u> , review with corrective action to ensure <u>targets achieved</u>	Detailed plans <u>coordinated with 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 broader <u>social goals</u> . Value chain partners contribute openly to <u>public dialogue</u> .
	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 <u>integration with traditional company IT system</u> . Personal development in place for all employees, <u>sustainability training & development</u> .	Information system <u>integrates financial and non- financial data</u> to enable sustainability assessments.	Opportunities to extend learning with participation in stakeholder outreach & partnerships. <u>Value chain systems interoperable to support life cycle modeling</u>
	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. <u>Data sharing protocols</u> defined for key stakeholders. Robust design s used to <u>optimize product systems life cycle</u> .	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	<u>Customer actively integrated</u> at multiple levels. <u>Quantification of life cycle impacts routine</u> for new product family.	Life cycle impacts <u>evaluated with sustainability measures</u> . Stakeholders engaged proactively to <u>optimize process impacts from social perspective</u> .
	Value	Reactive business planning Internal perspective, "sell what we make"	Competing views of SD, efforts not consistent or aligned	<u>Competitive benefit of SD recognized, but not well integrated</u> . Strategic planning explicitly considers key stakeholders	Customer definition of <u>value guides strategy</u> . How the organization contributes to the success of value chain defined & incorporated into most programs	Effective integration/ <u>collaboration of value chain partners</u> to achieve competitive business advantage & deliver positive <u>social/ environmental benefits</u>

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

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

SCORELCA



Members of SCORELCA



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

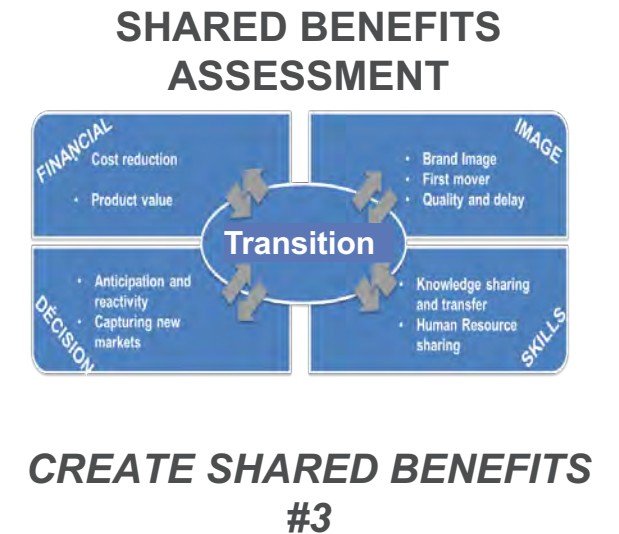
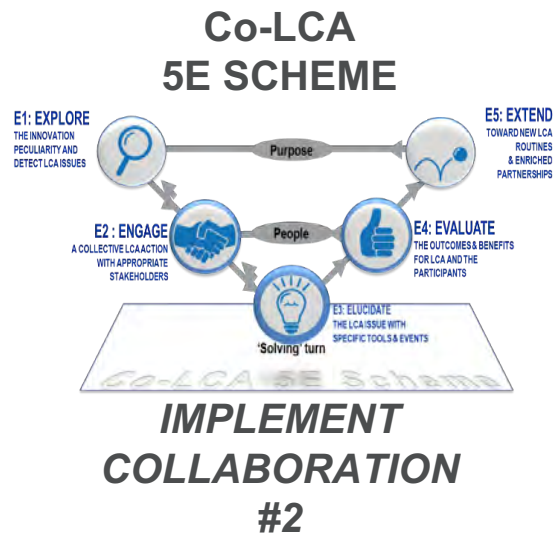


CREATE AN ECO TRANSITION BASED ON COLLABORATIVE LIFE CYCLE ACTIVITIES (CO-LCA)

ECO TRANSITION MATRIX

	Context	Fragmental	Integrated	Extended	Emerging
Plan	Identify purpose, align the organization with the business goals, for formal assessment, formalized assessment log	Use goals of stakeholders for assessment. Formalize assessment, support the strategy plan, support the strategy plan	Formal plan, coordinated with the overall strategy. Formal project management process, formal assessment, formalized assessment log	Identify purpose, align the organization with the business goals, for formal assessment, formalized assessment log	Identify purpose, align the organization with the business goals, for formal assessment, formalized assessment log
Enable	Apply formal methods & tools, testing at the IT system level	Formalize on-site, structure data, verify program non-compliance, change of content of the system, change of content of the system	Formal suggestion for LCA, formalized assessment, formalized assessment log	Formal suggestion for LCA, formalized assessment, formalized assessment log	Formal suggestion for LCA, formalized assessment, formalized assessment log
Evaluate	Formalize and validate the program, product level results	Formalize and validate the program, product level results	Formalize and validate the program, product level results	Formalize and validate the program, product level results	Formalize and validate the program, product level results
Eco-Design	Formalize and validate the program, product level results	Formalize and validate the program, product level results	Formalize and validate the program, product level results	Formalize and validate the program, product level results	Formalize and validate the program, product level results
Value	Formalize and validate the program, product level results	Formalize and validate the program, product level results	Formalize and validate the program, product level results	Formalize and validate the program, product level results	Formalize and validate the program, product level results

ENVISION THE TRANSITION
#1



#4 NEW BUSINESS MODEL INTEGRATION & SCALE UP

CIRCULAR ECONOMY



ZERO EMISSIONS

ZERO FATALITIES

Nissan Keynote Address at CES 2017

<http://nissannews.com/>

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**

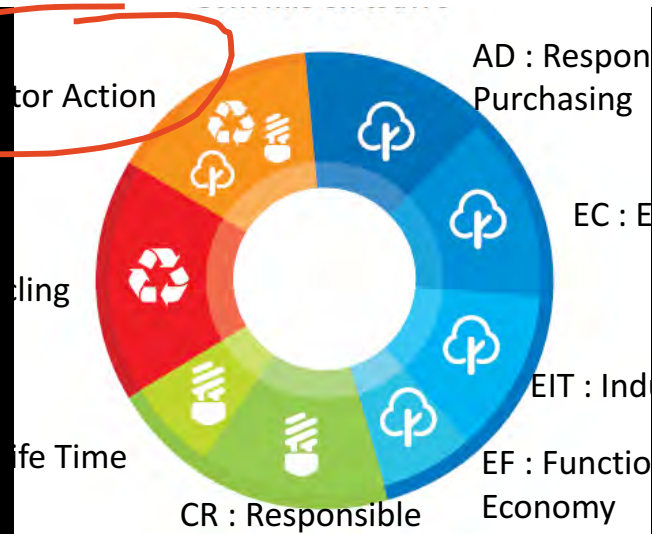


SETTING NEW BUSINESS MODELS

TRANSITION : CIRCULAR ECONOMY – 100 COMMITMENTS



All levers of circular economy are activated

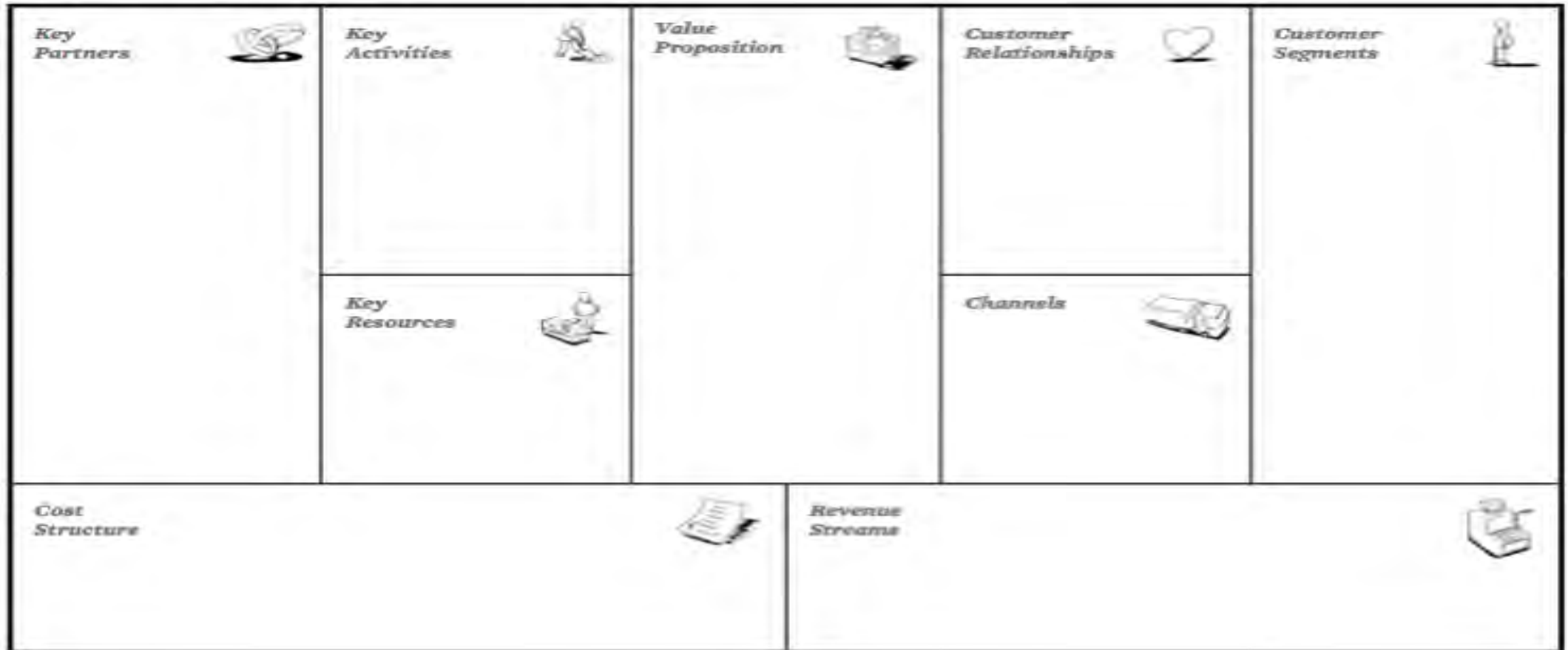


And ... 9 Companies took LCA commitments



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/

EXPANDING LIFE CYCLE THINKING ORGANISATIONAL MATURITY LEVELS








Licence to produce

Collaborating
within the organisation

Collaborating
with the stakeholders

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

MANAGEMENT X MATURITY = ECOTRANSITION MATRIX

						
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	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. <u>Data sharing protocols</u> defined for key stakeholders. Robust design s used to <u>optimize product systems life cycle</u> .	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	<u>Customer actively integrated</u> at multiple levels. <u>Quantification of life cycle impacts routine</u> for new product family.	Life cycle impacts <u>evaluated with sustainability measures</u> . Stakeholders engaged proactively to <u>optimize process impacts from social perspective</u> .
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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:

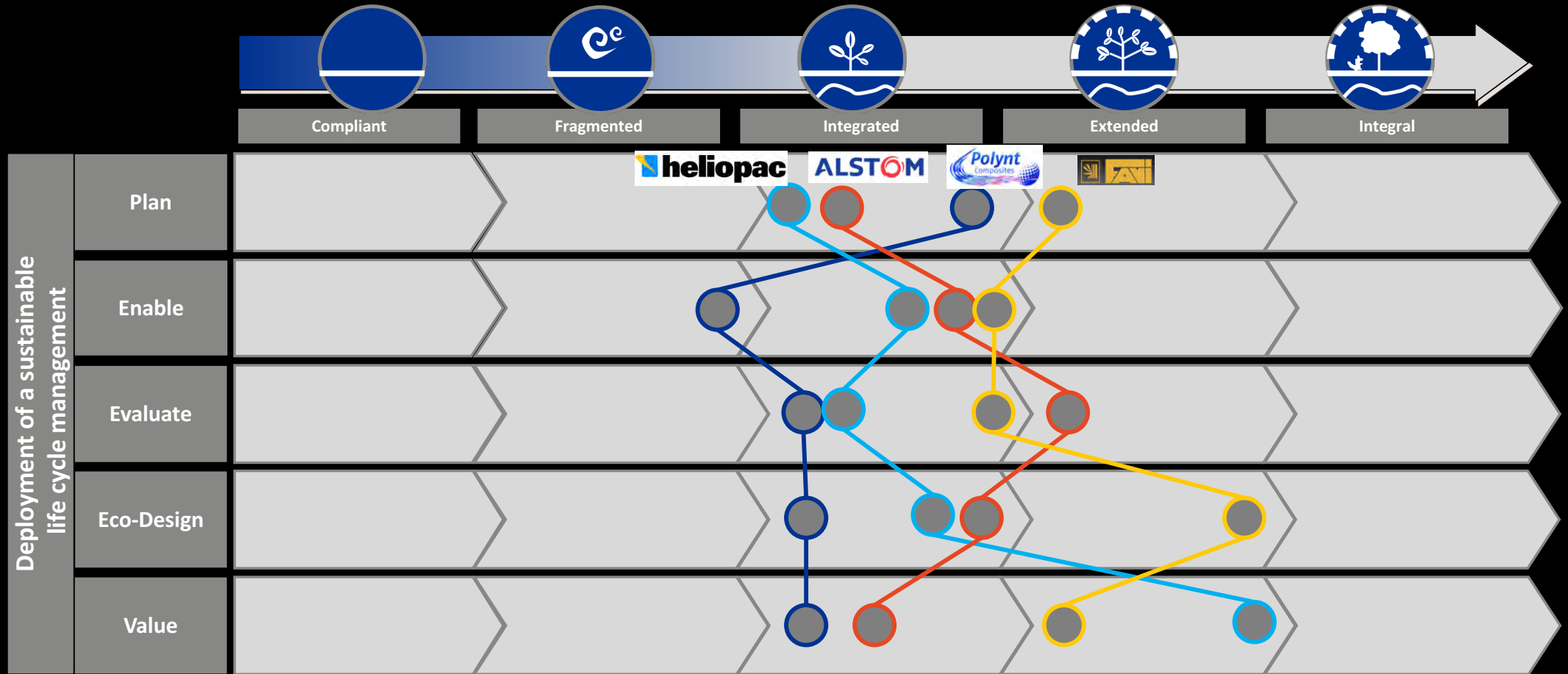
ECOTRANSITION
MATRIX

Commanditaires:

CD2E

GT Clients-
Fournisseurs

CD2E WORKSHOP – ON GOING SELF EVALUATION



ECOTRANSITION MATRIX

REVEAL

DISCUSS

PROVIDE

BENCHMARK

ECO-INNOVATION AND NEW BUSINESS ARE



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



chroniquesdelinvisible.wordpress.com

ECO-INNOVATION AND NEW BUSINESS ARE



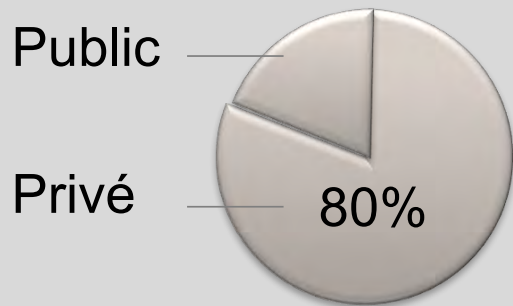
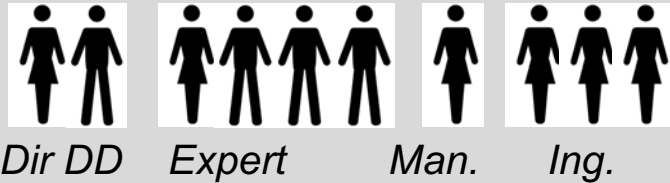
**CREATE NEW TANGIBLE BENEFITS
ADDITIONAL AND SHARED**



PANEL AND METHODOLOGY

SCORELCA

PANEL



Expérience :



1990 2000 2010

-
-
-



Date:

9, 10, 11 mai 2016

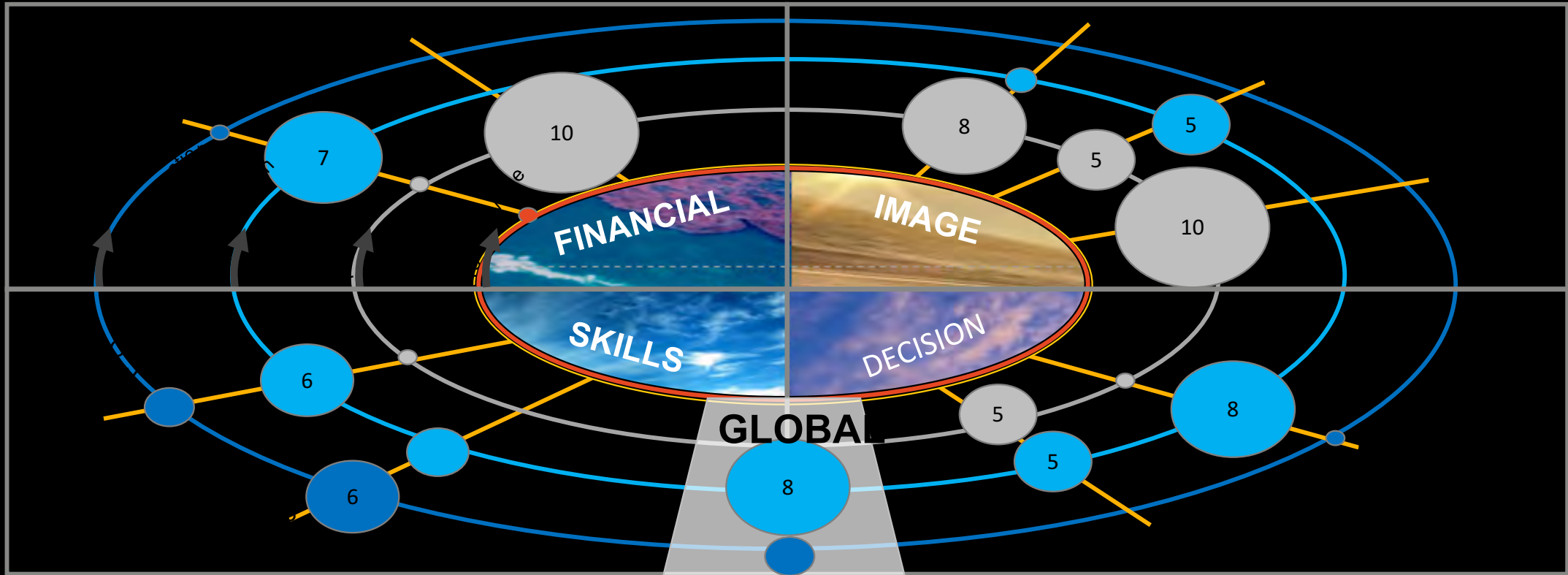
Support:

Web and phone meetings

Comissioners :

CREATE NEW AND SHARED BENEFITS ASSESSMENT OF A LCA RESEARCH NETWORK

SCORELCA



Members of SCORELCA



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*

Discrepancies 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*



Members of SCORELCA



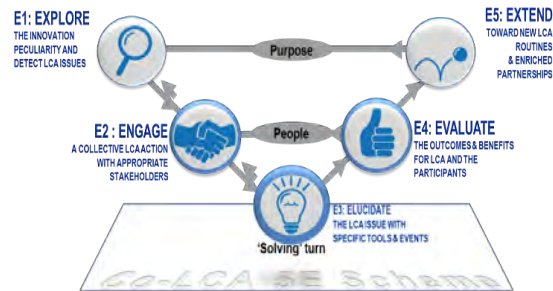
CREATE AN ECO TRANSITION BASED ON COLLABORATIVE LIFE CYCLE ACTIVITIES (CO-LCA)

ECO TRANSITION MATRIX

	Complete	Fragmented	Integrative	Extensive	Integrative
Plan	Initial strategy, difficult to implement, weak to medium-term goals. No formal assessment, limited accountability.	Key goals of partial realization by departments. Process based approach to identifying project plan.	Partial plans, coordinated with overall company plan. Formal project management process in place. Multiple, aligned objectives, with some cross-functional collaboration.	Defined plan covering all LCA issues. Collaborative approach, strong cross-functional. Progress control processes, multi-level review and communication.	Strategic plan, to be implemented in the medium term. Formal project management process in place. Multiple, aligned objectives, with some cross-functional collaboration.
Enable	Highly formalized policies & reports. Top-down IT system development.	Common use of data, shared data, early on-going communication. Limited use of common IT infrastructure.	Partial integration of LCA into existing LCA systems. Formal development process for all employees, specialized training & development.	Information system (ERP/CRM) integrated with LCA data. Formal development process for all employees, specialized training & development.	Highly formalized policies & reports. Top-down IT system development. Multiple, aligned objectives, with some cross-functional collaboration.
Evaluate	Formal and data-based to produce product level results.	Key performance indicators, high management visibility. Limited data availability and analysis.	Partial integration of LCA into existing LCA systems. Formal development process for all employees, specialized training & development.	Common use of data, shared data, early on-going communication. Limited use of common IT infrastructure.	Highly formalized policies & reports. Top-down IT system development. Multiple, aligned objectives, with some cross-functional collaboration.
Eco-Design	Design and development to meet and share. Low external environmental compliance.	Manufacturing and assembly processes. Limited integration of LCA into existing LCA systems. Formal development process for all employees, specialized training & development.	Key performance indicators, high management visibility. Limited data availability and analysis.	Partial integration of LCA into existing LCA systems. Formal development process for all employees, specialized training & development.	Highly formalized policies & reports. Top-down IT system development. Multiple, aligned objectives, with some cross-functional collaboration.
Value	Business business priorities, management perspective, self-made market.	Formal and data-based to produce product level results.	Key performance indicators, high management visibility. Limited data availability and analysis.	Partial integration of LCA into existing LCA systems. Formal development process for all employees, specialized training & development.	Highly formalized policies & reports. Top-down IT system development. Multiple, aligned objectives, with some cross-functional collaboration.

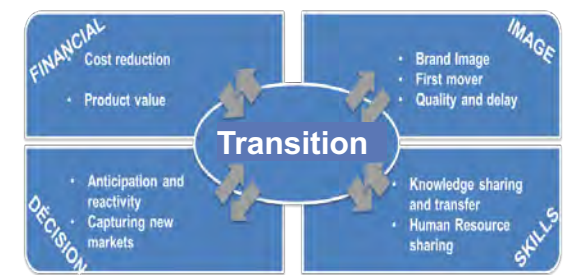
ENVISION THE TRANSITION
#1

Co-LCA 5E SCHEME



IMPLEMENT COLLABORATION
#2

SHARED BENEFITS ASSESSMENT



CREATE SHARED BENEFITS
#3

#4 NEW BUSINESS MODEL INTEGRATION & SCALE UP

Thanks

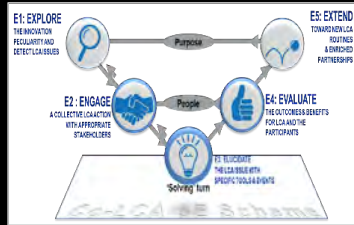
ECO-INNOVATION AND NEW BUSINESS TRANSITION



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

George Bernard Shaw

Phase	Objectives	Activities	Deliverables
Phase 1	Identify the business case for LCA	Define the scope and objectives of the LCA	Business case for LCA
Phase 2	Define the LCA methodology	Identify the data sources and the LCA software	LCA methodology
Phase 3	Collect the data	Identify the data sources and the data collection methods	Data collection
Phase 4	Perform the LCA	Perform the LCA calculations	LCA results
Phase 5	Communicate the results	Communicate the results to the stakeholders	Communication



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

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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



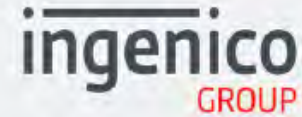
Enrichir et promouvoir la transparence sur les informations de « Circularité » des produits avec un objectif de 75 % de notre chiffre d’affaires réalisé avec des produits bénéficiant d’une analyse de cycle de vie complète et d’instructions précises de gestion de fin de vie du produit, l’une et l’autre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



Mettre en oeuvre la démarche d’eco-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

