FOR SUSTAINABILITY

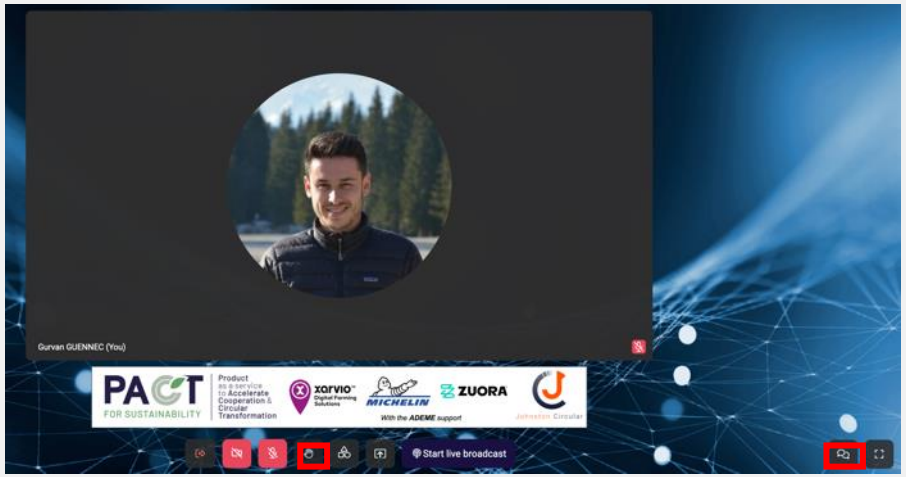
Product as a service to
Accelerate Cooperation and
Circular Transformation

BEYOND OWNERSHIP : CAN BUSINESS MODELS CHANGE CONSUMPTION HABITS AND DELIVER REAL SUSTAINABILITY IMPACT?

3rd of November 2026

HOW TO INTERACT & COMMUNICATE WITH US ?

During the Webinar

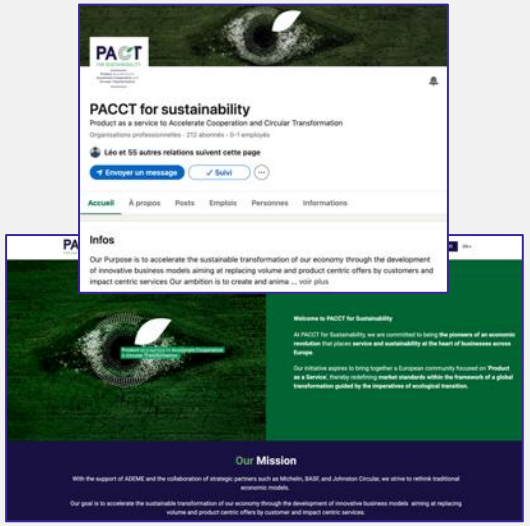


Please ask your questions or comments in English

At the end of the Webinar

Please take 2 minutes to answer 4 questions, and help us improve your experience

After the Webinar



change@pacct-sustainability.org

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Re-Live our webinar on our website

Today’s speakers !

Steven SARASINI

Research Manager, Digital Systems and Societal Transformation

RISE



Frantz BEZNIK

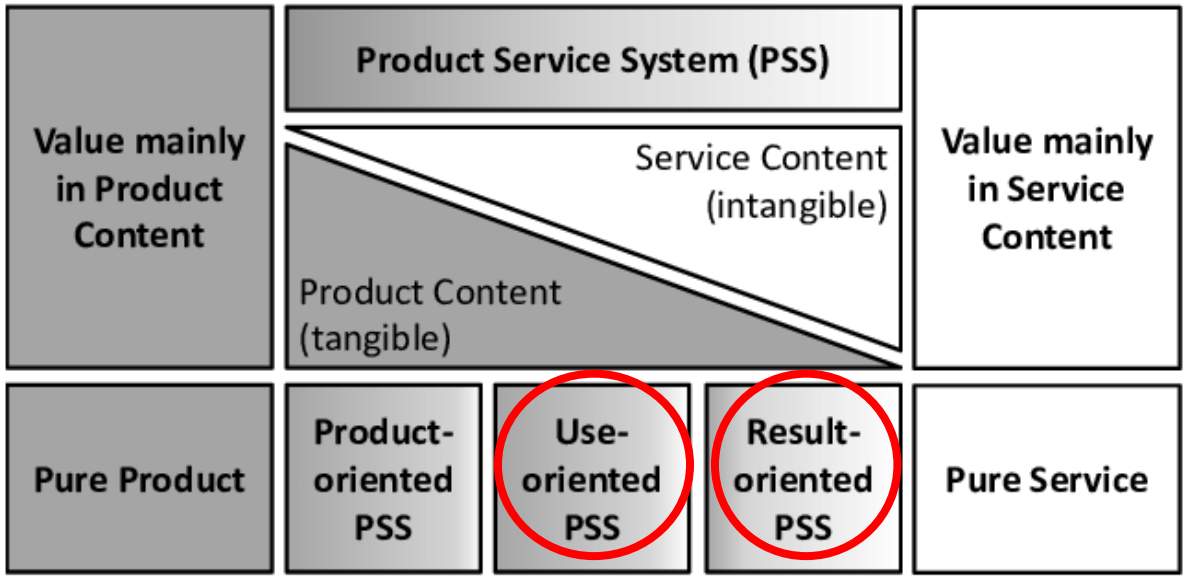
R&D Head of Sustainable Innovation & Executive Director of 50LH Coalition with WBCSD

Procter & Gamble



The PROSPERITY project

- Depicted as having strong **environmental credentials** (e.g. Mont 2002)
- Potential 90% reductions in environmental impact (Tukker, 2004)
- Critical for **product circularity** (Boyer et al. 2021)



Summary

PROJECT NAME
PROSPERITY

STATUS
Completed

REGION
Västra Götaland Region, Other than Sweden

RISE ROLE IN PROJECT
Coordinator

PROJECT START
2022-01-01

DURATION
3,5 years

TOTAL BUDGET
SEK 5,7m

PARTNER
Maastricht University, Nancy Bocken

FUNDERS
FORMAS

PROJECT MEMBERS
Katherine Whalen, Steven Sarasini, Anneli Selvefors

PROSPERITY website

Aim and scop : Lines of inquiry

What role(s) can product-service business models play in transitions towards more resource-efficient and climate-friendly modes of production, consumption and use?

PROSPERITY examined whether and how PSS business models can shape sustainability transitions through changes in consumption and user practices.

FOUR LINKED OBJECTIVES

- Map PSS configurations and climatic impacts
- Identify circular value creation, delivery and capture mechanisms that attract users
- Examine use-phase practices and consequences for sustainability assessment
- Develop theoretical and practical implications for sustainability transitions.

Approach and evidence

A mixed-method research design focused on B2C sectors in Sweden and the Netherlands

Business model perspectives • social practice theory • transition studies

01	**Systematic lit. review**	27 LCA assessments from 296 screened publications
02	**Choice experiments**	1,631 prospective consumers across vacuum cleaners, lawnmowers, strollers and wool coats, 804-person garment-story experiment
03	**User practices**	514 online reviews, four parenting services and two focus groups
04	**Cross-paper synthesis**	Exploring the role of business models in transforming user practices in wider sustainability transitions

The 50L HOME project : A public-private system-change platform

Co-Chairs

Members

Partners

Secretariat



Collaboration

Private sector: design and innovation

Utilities: service delivery

Government: regulation

Households: use behaviors

OUR MISSION

Make 50-liter living the standard through innovation that improves quality of life.

The 50L HOME project : Our drive & proof-point

Make 50L feel as 500L at low carbon

What if you could slash the water you use in your home, without even trying!...

We're not *asking* households to use less water.

We’re making home routines much simpler – with water savings as a by-product.

LITERS / PERSON / DAY

500 Today's reality in many cities

50 ...and what can be possible when products do more with less water at low carbon

Our LA Pilot proved Better Living at 79L

What makes people change the way they consume?

Business Strategy and the Environment

WILEY | Business Strategy and the Environment

RESEARCH ARTICLE OPEN ACCESS

What Constitutes an Attractive Product-as-a-Service Offer? Examining Consumer Preferences for (Circular) Business Patterns

Steven Sarasini[1] | Aemiro Melkamu Daniel[1] | Katherine Whalen[1] | Nancy Bocken[2] | Agnieszka Hunka[1] | Tarlan Ahmadov[1,3]

[1]RISE Research Institutes of Sweden, Gothenburg, Sweden | [2]School of Business and Economics, Maastricht Sustainability Institute, Maastricht, the Netherlands | [3]Sustainable Value Chain Management Unit, Tallinn University of Technology, Tallinn, Estonia

Correspondence: Steven Sarasini (steven.sarasini@ri.se)

Received: 29 November 2024 | **Revised:** 30 October 2025 | **Accepted:** 9 March 2026

Keywords: business model patterns | circular business models | consumer preferences | design | product-as-a-service | product service systems

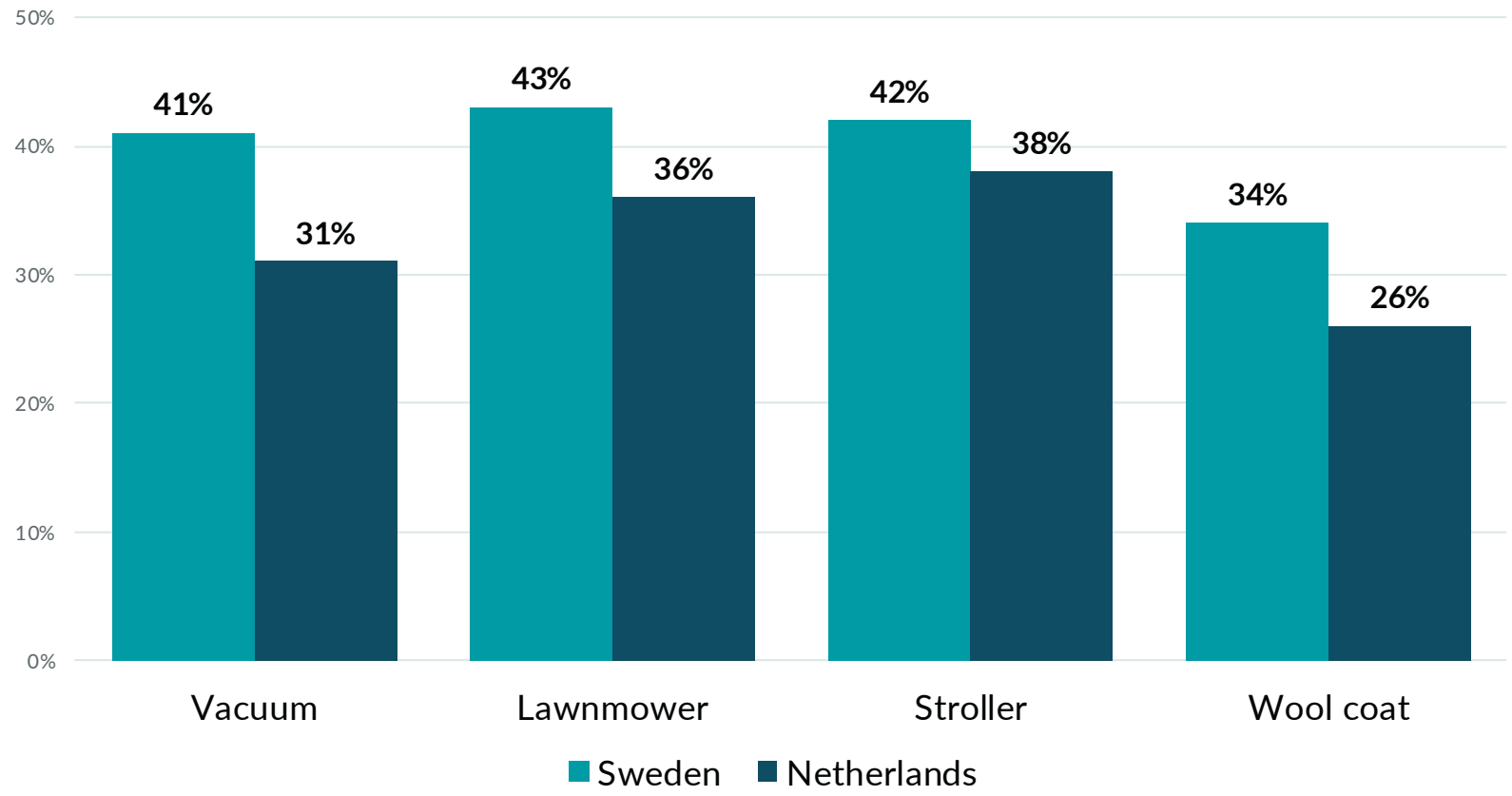
ABSTRACT

Little is known about consumer preferences for combinations of circular business model patterns, despite their potential to benefit the design of product services. This study examines consumer preferences for product-as-a-service offers, combined with circular product attributes, across Sweden and the Netherlands. Using choice experiments for robotic vacuum cleaners

https://onlinelibrary.wiley.com/doi/pdf/10.1002/bse.70800

Findings : consumer preferences

Choice share for pay-monthly offers



Stated-choice experiment; percentages show selection of pay-monthly in the choice task (n=1631)

Swedish respondents generally showed greater interest in pay-monthly offers

Dutch respondents more frequntly preferred ownership.

Findings : consumer preferences

Preferences for different product-service attributes

TABLE 13 | Summary of preferred attribute levels (business model patterns) across products.

		Robotic vacuum cleaners		Robotic lawnmowers		Strollers		Wool coats	
Attribute	**Levels**	**NL**	**SE**	**NL**	**SE**	**NL**	**SE**	**NL**	**SE**
Condition	Brand new vs. Refurbished	Brand new							
Appearance	As new vs. Heavily worn	As new							
	Slightly worn vs. heavily worn	Slightly worn							
Convertibility	Convertible vs. not convertible	NA				Convertible		NA	
Repairs	Do-it-yourself (parts sent by post) vs. take to local service centre for repair	Take to local service centre for repair						NA	
Materials	Cashmere vs. lambswool			NA				Cashmere	
	Merino wool vs. lambswool			NA				Merino	

Product condition, appearance and convenient repair shaped whether access was compelling in both SE and NL.

Stories can unlock the value of reused garments

804-person garment-story experiment

Stories and narrative information about garments' prior use increased Swedish interest in paying monthly from 34% to 43%.

Stories do not reliably shift interest in product condition, appearance or material.

Narrative information can make circulation meaningful, but its effect is contextual.





Key insights 50L Home project

Products' pairing unlocks performance



Dawn Powerwash + Cascade Platinum Plus + Efficient Dishwasher

-49%

kitchen sink hot water reduction

No soaking,
No scrubbing
No pre-rinsing



Tide Coldwater + HE Washer

-48%

laundry hot water reduction

Cold-water washing became default.
No need for sorting color clothes anymore.
Laundry job now delegated to the whole family

A Peek Inside the Home

On average, households achieved indoor water use of just **79 liters** (21 gallons) per person per day, **less than half the Los Angeles average**. They also reduced daily energy use associated with water heating and consumption by 35% compared to baseline levels.

Three key areas drove indoor water savings:



Laundry Room

Average daily household water savings:



32%⬇
less water



48%⬇
less hot water

Bathroom

Average daily household water savings:



Per shower:
17%⬇
less water



Toilet:
15%⬇
less water

Kitchen

Average daily household water savings:



Kitchen sink:
16%⬇
less water

49%⬇
less hot water



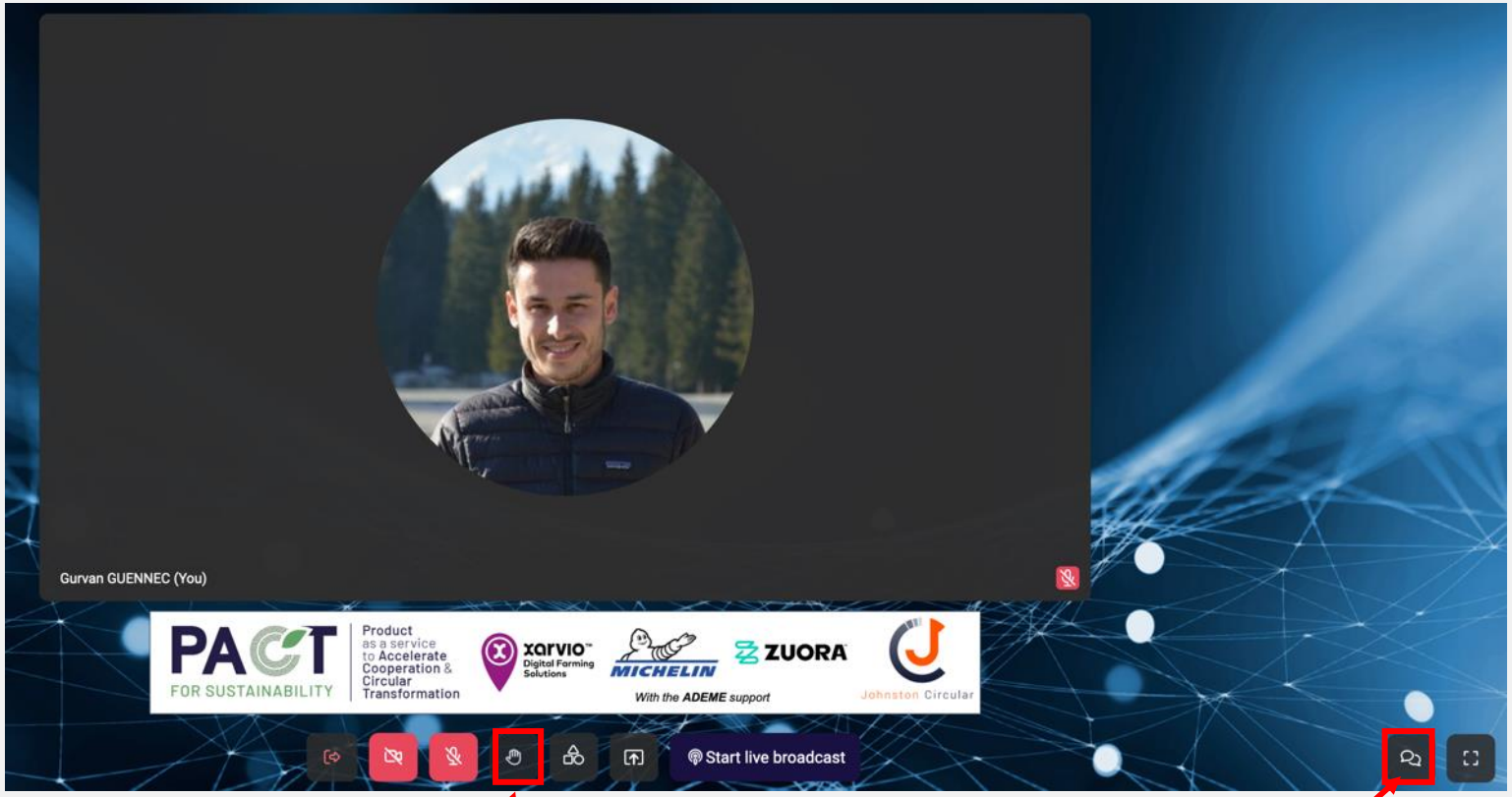
Kitchen sink + dishwasher:
14%⬇
less water

PACT FOR SUSTAINABILITY

50L HOME

Q&A (5min)

Two possible ways to ask your questions



Raise your hand and you will interact by video directly with the speakers

Ask your questions in the chat

Do sustainable business models actually deliver sustainability?

The Case for Indoor Water Efficiency

A practical pathway to a more resilient future.

Reliable and consistent

Indoor water use remains steady across seasons, climates, and weather patterns.

Nationally and globally relevant

A household in Los Angeles, Phoenix, Chicago or London have fundamentally similar indoor water needs.

Energy co-benefits

Water heating accounts for roughly one-fifth of residential energy use. Every gallon of hot water saved reduces both emissions and household bills.

These system-level benefits also translate into meaningful household value over time.

More than
$1,200
in annual savings*

About
131k liters / **35k** gallons
saved annually per home

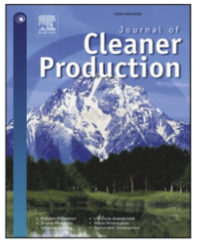
Full ROI
within 3 years for "whole-home retrofit"

Journal of Cleaner Production 452 (2024) 142119

Contents lists available at ScienceDirect

Journal of Cleaner Production

journal homepage: www.elsevier.com/locate/jclepro



Review

Reviewing the climatic impacts of product service systems: Implications for research and practice

Steven Sarasini [a,*], Nancy Bocken [b], Derek Diener [a], Myrthe Velter [c], Katherine Whalen [a]

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[b] Maastricht Sustainability Institute, School of Business and Economics, P.O. Box 616, 6200, MD, Maastricht, the Netherlands
[c] Fontys Hogescholen, Rachelsmolen 1, 5612 MA, Gebouw R4, Postbus 347, 5600, AH, Eindhoven, the Netherlands

ARTICLE INFO

Handling Editor: Cecilia Maria Villas Bôas de Almeida

Keywords:
Product service systems
Literature review
Life cycle assessment
Business models
Climate change

ABSTRACT

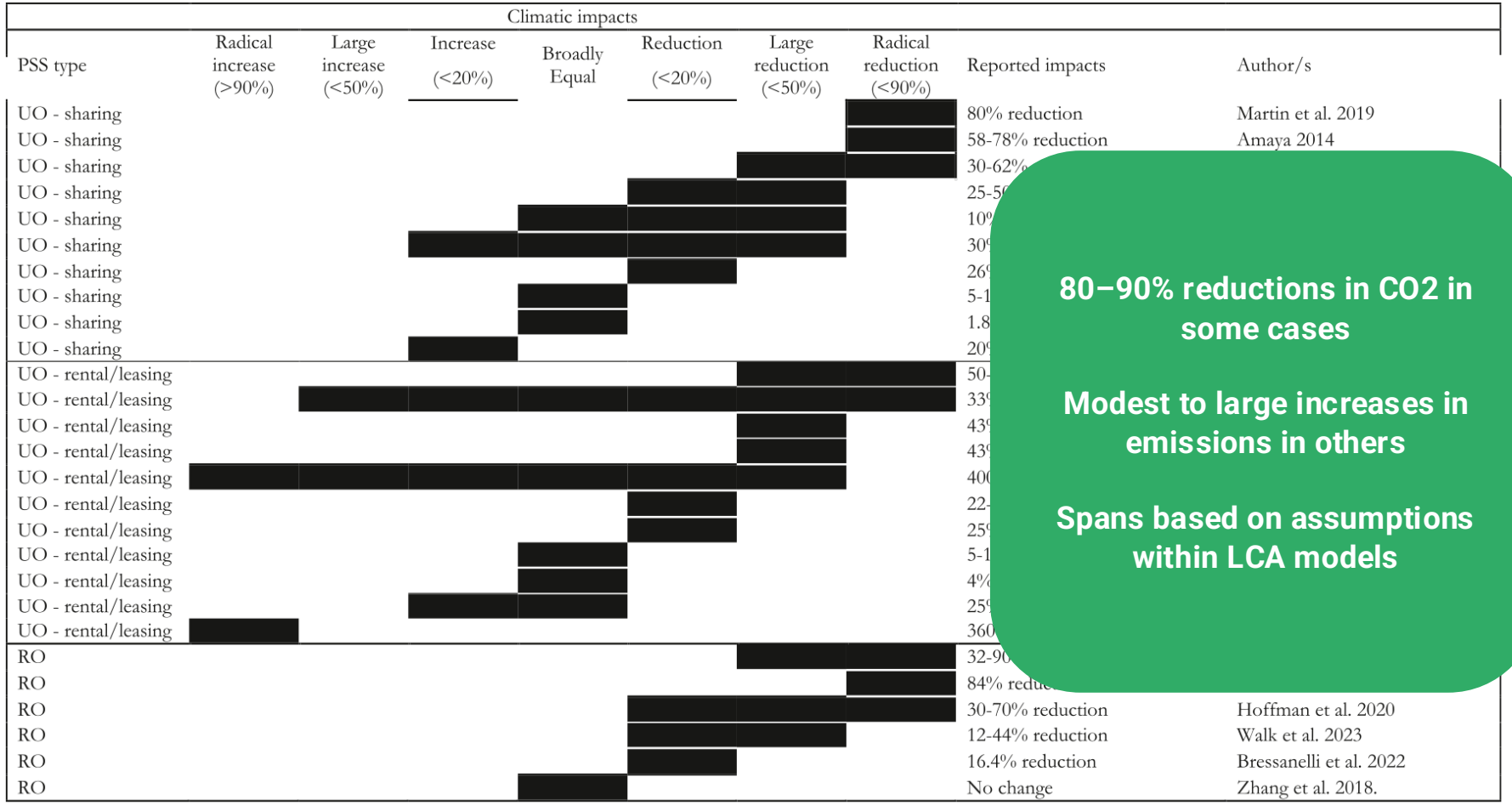
Product service systems (PSS) are an example of a novel business model billed as having the potential to significantly reduce the environmental burdens of production and consumption processes. However, despite widespread interest in PSS, consensus regarding their actual environmental impacts, particularly with regard to salient issues such as global warming, is lacking. Hence this paper explores existing research to investigate the state of the art regarding the climatic impacts of PSS, alongside the set of factors that influence climatic impacts. The paper comprises a systematic review of peer-reviewed academic literature, quantifying the extent to which different types of PSS have the capacity to reduce greenhouse gas emissions across multiple product categories. Our study shows that significant reductions in climatic emissions are possible, but PSS are in many cases associated with more modest reductions and, in some cases, increased emissions. Further, we observe no clear differences in climatic impacts according to the type of PSS model that is deployed. Rather, differences in climatic

https://www.sciencedirect.com/science/article/pii/S0959652624015671?via%3Dihub

Prosperity : Climatic impact across different types of PSS

Table 6

Climatic impacts across different types of product service systems (PSS). NB: separate assessments for multiple scenarios have been combined into single ranges for visualisation purposes. UO = user oriented, RO = result oriented.



PSS type	Climatic impacts: Radical increase (>90%)	Large increase (<50%)	Increase (<20%)	Broadly Equal	Reduction (<20%)	Large reduction (<50%)	Radical reduction (<90%)	Reported impacts	Author/s
UO - sharing								80% reduction	Martin et al. 2019
UO - sharing								58-78% reduction	Amaya 2014
UO - sharing								30-62%	
UO - sharing								25-5	
UO - sharing								10	
UO - sharing								30	
UO - sharing								26	
UO - sharing								5-1	
UO - sharing								1.8	
UO - sharing								20	
UO - rental/leasing								50-	
UO - rental/leasing								33	
UO - rental/leasing								43	
UO - rental/leasing								43	
UO - rental/leasing								40	
UO - rental/leasing								22-	
UO - rental/leasing								25	
UO - rental/leasing								5-1	
UO - rental/leasing								4%	
UO - rental/leasing								25	
UO - rental/leasing								360	
RO								32-90	
RO								84% redu	
RO								30-70% reduction	Hoffman et al. 2020
RO								12-44% reduction	Walk et al. 2023
RO								16.4% reduction	Bressanelli et al. 2022
RO								No change	Zhang et al. 2018.

80–90% reductions in CO2 in some cases

Modest to large increases in emissions in others

Spans based on assumptions within LCA models

What influences climatic impacts?

Three types of factors:

1) Related to the inherent qualities of a PSS offer
2) *Related to the way PSS are used*
3) Related to broader sociotechnical systems.

Influential factor	Number of mentions			
	UO (sharing)	UO (rental/ leasing)	RO	Total
Use-phase transportation	6	8	1	**15**
Production	5	5	4	**14**
Product utilisation	6	5	2	**13**
Product lifespan	3	2	3	**8**
Maintenance/cleaning/ repair	2	3	1	**6**
Energy/electricity mix	1	2	1	**4**
Product purchase substitution	1	1		**2**
Distribution	1			**1**
End of life	1			**1**
Material recirculation			1	**1**
Other			3	**3**

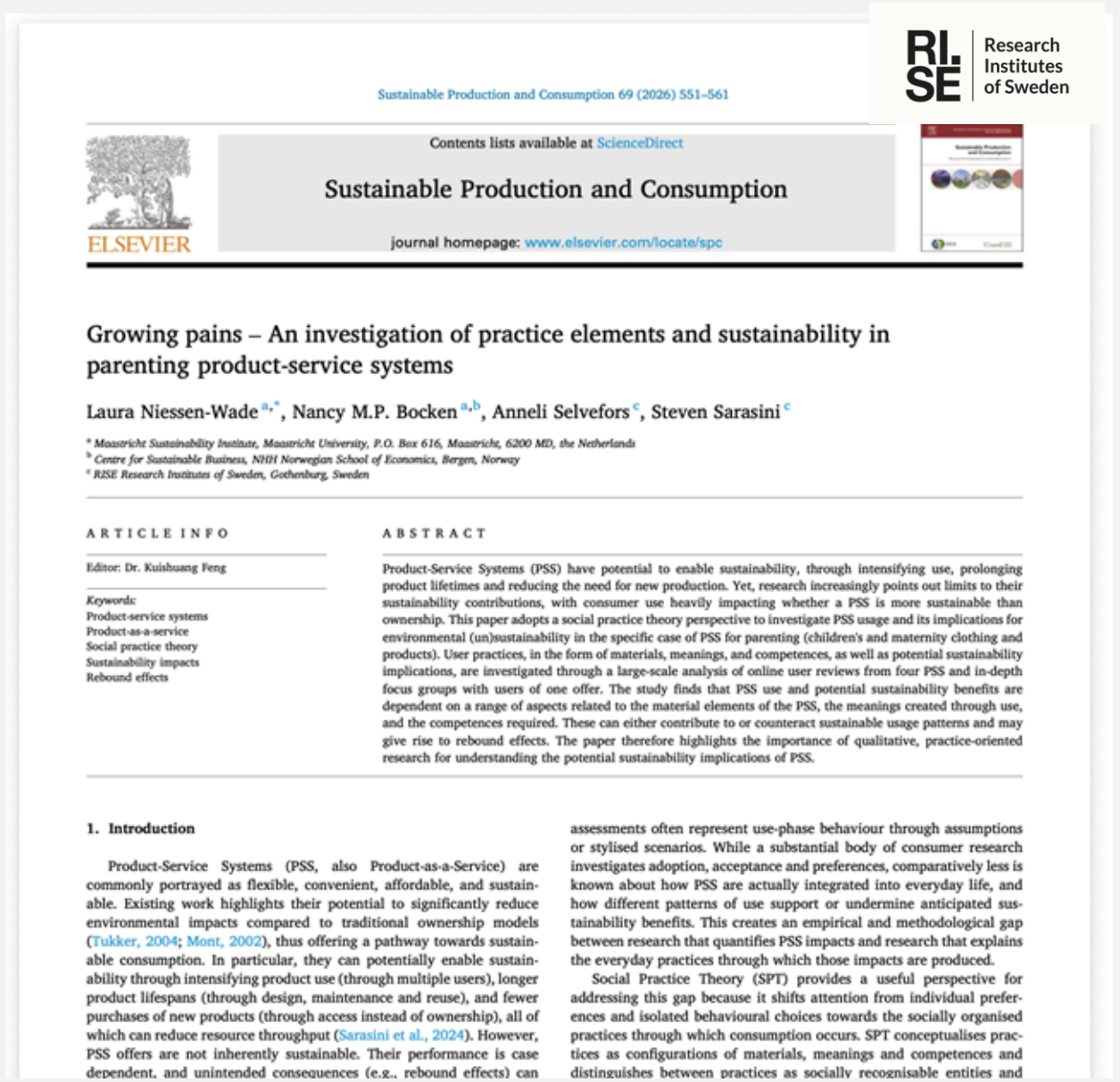
Implication: How can qualitative approaches be deployed to evaluate use-phase variables in a manner that supports more accurate quantitative assessments of PSS' environmental impacts?

User practices influence sustainability outcomes

PSS can support sustainability when they displace new purchases and enable (re)circulation.

Benefits erode when access supplements ownership, adds logistics or weakens product care.

Service design should aim to reduce acquisition and enable product care, not simply make access easier.



Sustainable Production and Consumption 69 (2026) 551–561

Contents lists available at ScienceDirect

Sustainable Production and Consumption

journal homepage: www.elsevier.com/locate/spc

Growing pains – An investigation of practice elements and sustainability in parenting product-service systems

Laura Niessen-Wade [a,*], Nancy M.P. Bocken [a,b], Anneli Selvefors [c], Steven Sarasini [c]

[a] Maastricht Sustainability Institute, Maastricht University, P.O. Box 616, Maastricht, 6200 MD, the Netherlands
[b] Centre for Sustainable Business, NHH Norwegian School of Economics, Bergen, Norway
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ARTICLE INFO

Editor: Dr. Kuishuang Feng

Keywords:
Product-service systems
Product-as-a-service
Social practice theory
Sustainability impacts
Rebound effects

ABSTRACT

Product-Service Systems (PSS) have potential to enable sustainability, through intensifying use, prolonging product lifetimes and reducing the need for new production. Yet, research increasingly points out limits to their sustainability contributions, with consumer use heavily impacting whether a PSS is more sustainable than ownership. This paper adopts a social practice theory perspective to investigate PSS usage and its implications for environmental (un)sustainability in the specific case of PSS for parenting (children's and maternity clothing and products). User practices, in the form of materials, meanings, and competences, as well as potential sustainability implications, are investigated through a large-scale analysis of online user reviews from four PSS and in-depth focus groups with users of one offer. The study finds that PSS use and potential sustainability benefits are dependent on a range of aspects related to the material elements of the PSS, the meanings created through use, and the competences required. These can either contribute to or counteract sustainable usage patterns and may give rise to rebound effects. The paper therefore highlights the importance of qualitative, practice-oriented research for understanding the potential sustainability implications of PSS.

1. Introduction

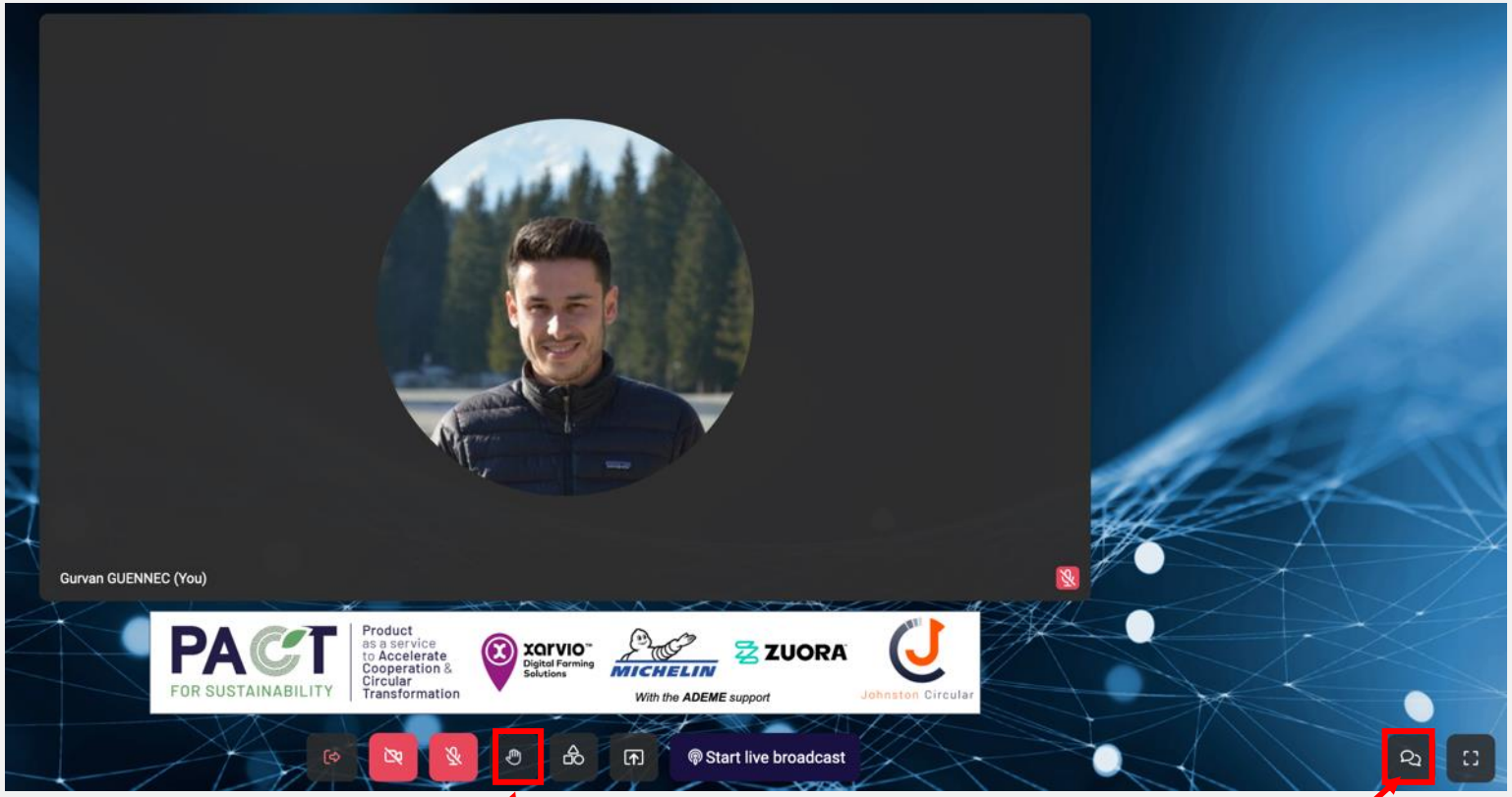
Product-Service Systems (PSS, also Product-as-a-Service) are commonly portrayed as flexible, convenient, affordable, and sustainable. Existing work highlights their potential to significantly reduce environmental impacts compared to traditional ownership models (Tukker, 2004; Mont, 2002), thus offering a pathway towards sustainable consumption. In particular, they can potentially enable sustainability through intensifying product use (through multiple users), longer product lifespans (through design, maintenance and reuse), and fewer purchases of new products (through access instead of ownership), all of which can reduce resource throughput (Sarasini et al., 2024). However, PSS offers are not inherently sustainable. Their performance is case dependent, and unintended consequences (e.g., rebound effects) can assessments often represent use-phase behaviour through assumptions or stylised scenarios. While a substantial body of consumer research investigates adoption, acceptance and preferences, comparatively less is known about how PSS are actually integrated into everyday life, and how different patterns of use support or undermine anticipated sustainability benefits. This creates an empirical and methodological gap between research that quantifies PSS impacts and research that explains the everyday practices through which those impacts are produced.

Social Practice Theory (SPT) provides a useful perspective for addressing this gap because it shifts attention from individual preferences and isolated behavioural choices towards the socially organised practices through which consumption occurs. SPT conceptualises practices as configurations of materials, meanings and competences and distinguishes between practices as socially recognisable entities and

https://www.sciencedirect.com/science/article/pii/S2352550926001612

Q&A (5min)

Two possible ways to ask your questions



Raise your hand and you will interact by video directly with the speakers

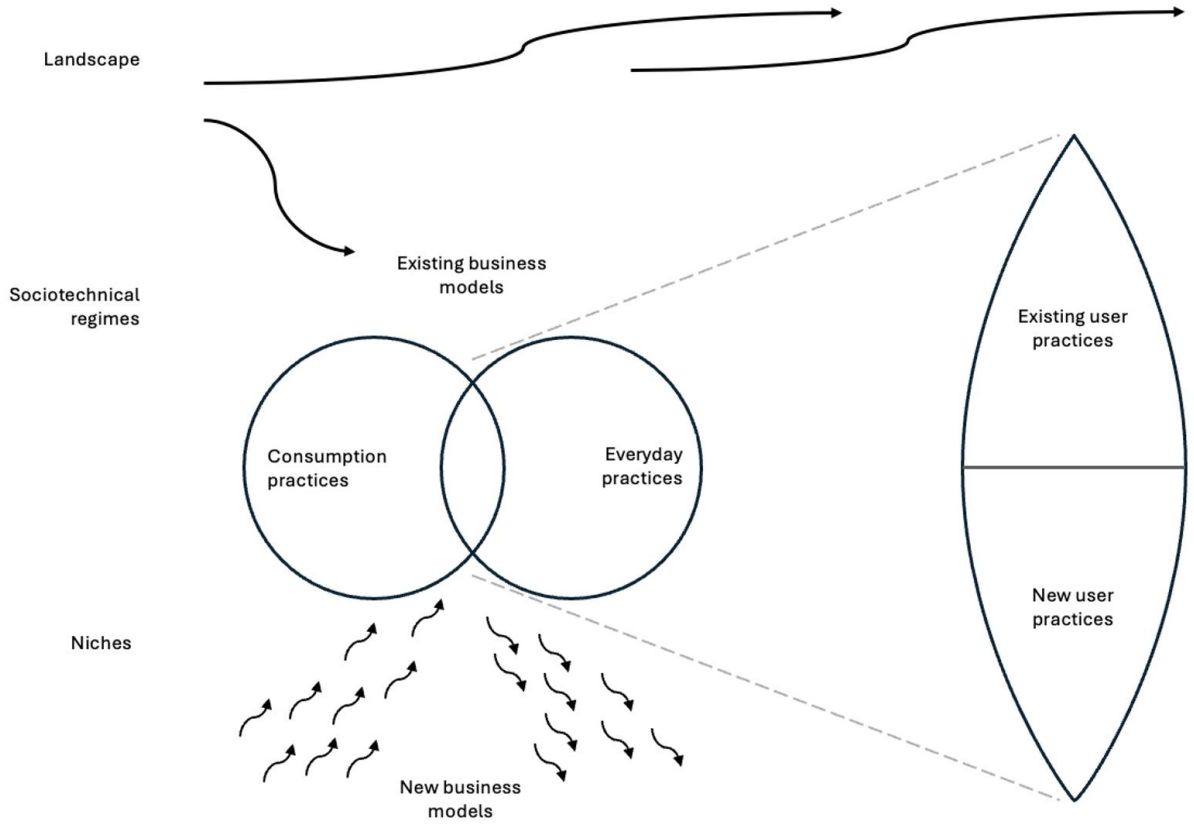
Ask your questions in the chat

What role can PaaS play in the transition?

Theoretical contribution and future research agenda

Business models can shape sustainability transitions through novel user practices

PROSPERITY frames PSS as practice-shaping sociotechnical arrangements that can bring about sustainable systemic transformation



Research agenda

Under what conditions do PSS support circularity and sufficiency?

How do value propositions, product design, logistics, user practices and infrastructures combine to generate sustainability outcomes?

How do novel user practices evolve and stabilise over time and what rebound effects emerge?

Conclusion & implications

What PROSPERITY shows

PSS must displace new production and support lower-impact ways of meeting real needs.

For PSS providers and service design

- Design for long lifespans, repair, refurbishment and repeated circulation
- Build around high product condition, convenient use and local preferences linked to everyday lifestyles and practices
- Create incentives that promote sustainable user practices related to returns, product care, maintenance, and rebound effects.



RI.SE Research Institutes of Sweden

Thanks!

steven.sarasini@ri.se

Scaling up

PaaS can work through on-bill financing, as it already does for energy efficiency – as one possibility

1 Pay upfront

A city or a utility or lender pays for the efficient fixtures, appliances and installation.

2 Repay on the bill

The household repays through a monthly charge on its existing utility bill.

3 Stay ahead

The charge is set below the bill savings, so the household is better off from the first month.

PROVEN IN THE ENERGY SECTOR

- Electric and gas utilities have used on-bill financing to pay for efficiency upgrades such as insulation, heating and cooling equipment, and appliances.
- Repayment is collected through the bill the household already pays, rather than a separate loan payment.

WHAT THE LA PILOT GIVES IT TO WORK WITH

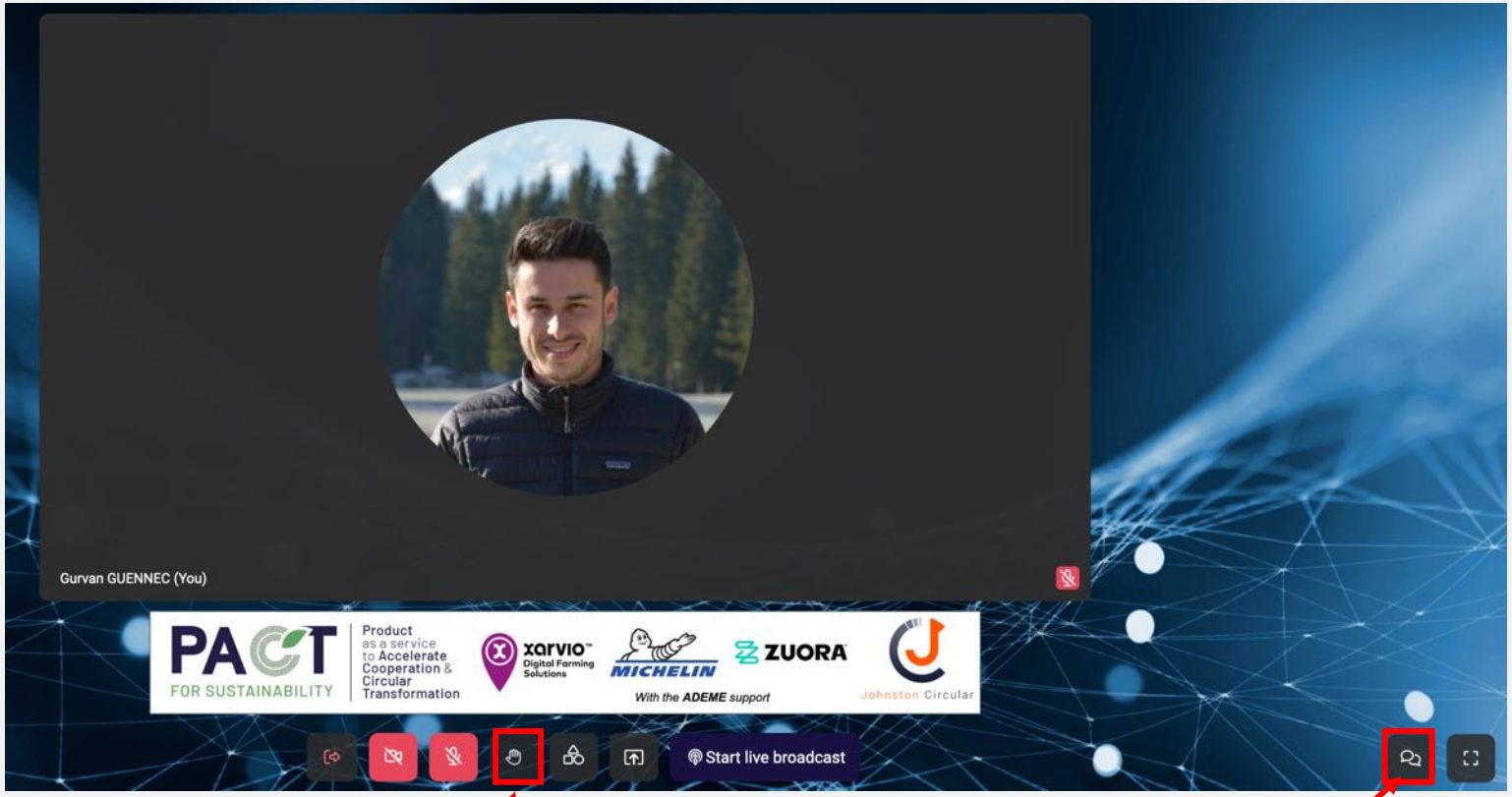
- $1,219 in bill savings per household per year to repay from.
- Savings that hold steady year to year, which a lender can rely on.
- It works best where tariffs make savings visible on the bill (previous slide).

What other PaaS possibilities?..

Q&A and conclusion

Q&A

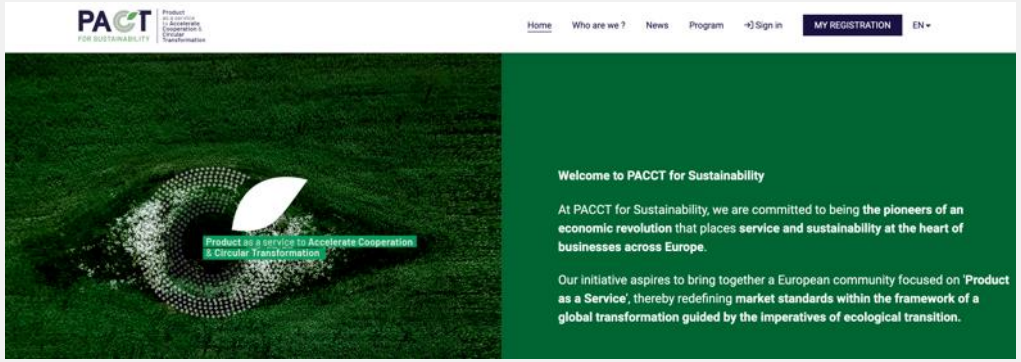
Two possible ways to ask your questions



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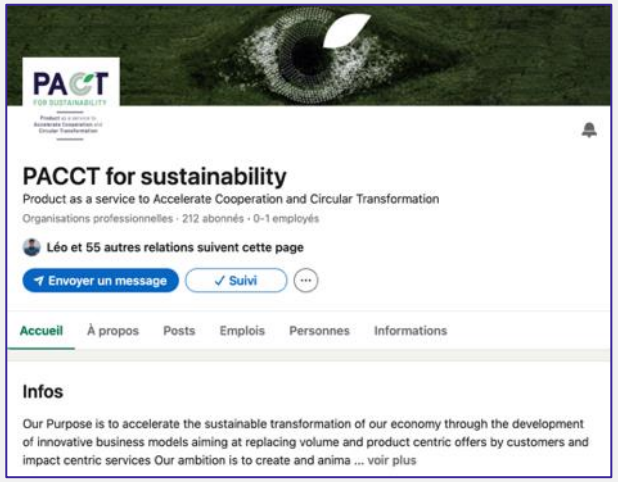
How to reach us ?



Our website

Replay & presentation in the "Program" section

Our LinkedIn page



Our emails

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françois.johnston@pacct-sustainability.org

PACCT
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Your feedbacks

It will only take 2 minutes !

Thank you !