The New Energy Customer:

What Can We Learn From Coproduction Research?

Martin Mende

Let's Talk About …

1. What is Coproduction?
2. Are Energy Consumers Coproducers?
3. Can Marketing / Coproduction Research Help?
4. Insights for 'Energy Services' 1: Coproduction and Service Innovation
5. Insights for 'Energy Services' 2: Understanding Coproduction Experiences
6. Concluding Remarks

1

Coproduction Defined

Services

- Service is “the application of specialized competences (skills and knowledge), through deeds, processes, and performances for the benefit of another entity or the entity itself (self-service)“ (Vargo and Lusch 2004).

- Services are deeds, processes, and performances … characterized by (high levels of) intangibility, heterogeneity, perishability, and inseparability (Zeithaml, Bitner, and Gremler 2013).

INSEPARABILITY

Coproduction (a.k.a. Customer Participation): Some Definitions

- Customer participation refers to customers' provision of inputs, including effort, time, knowledge, or other resources related to service production and delivery (Dong et al. 2014; Grönroos 2008; Mustak et al. 2016).

- Behaviors that customers need to perform (before, during, and/or after a service encounter) in order to support service generation (Groth 2005) (e.g., online banking; hotel self-check-in).

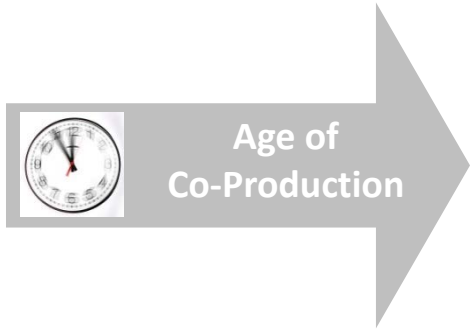
- Customers' direct participation in the creation of core offerings (Lusch and Vargo 2006)

- Consumers participate in the performance of various activities performed in the stages of service provision. Coproduction encompasses all cooperation formats between consumers and service providers (Etgar 2007).

Metamorphosis of Service Consumption

Parsons (1970, p. 15):

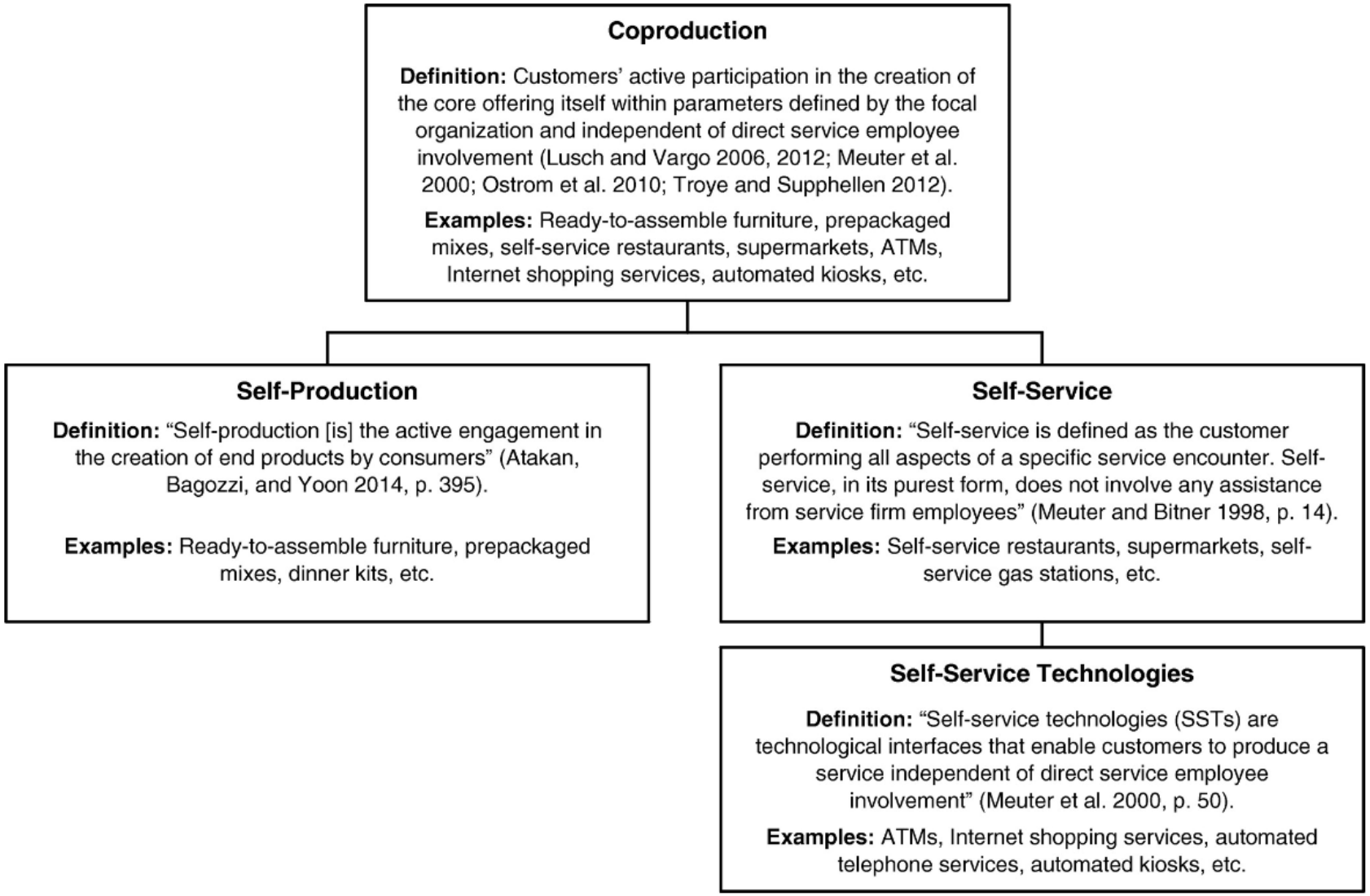
"It seems to be in the nature of the division of labor that service organizations should make a clear distinction between the providers and the recipients of service."



Honebein and Cammarano (2005, p. IX):

"In the past, customers expected companies to do a lot of the work for them. Now, companies are expecting customers to do more of the work themselves (…) and customers are responding enthusiastically."

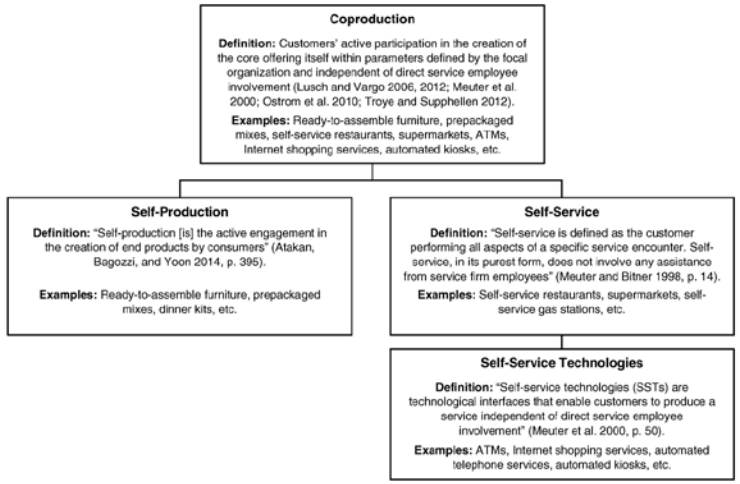
Coproduction (a.k.a. Customer Participation)



Haumann et al. (2015)

Customer Coproduction Can Undermine Service Performance

- Lack of understanding of their roles
- Not being willing or able to perform their roles
- No rewards for “good performance”
- Interfering with other customers
- Incompatible market segments



Coproduction Among the Influential Topics

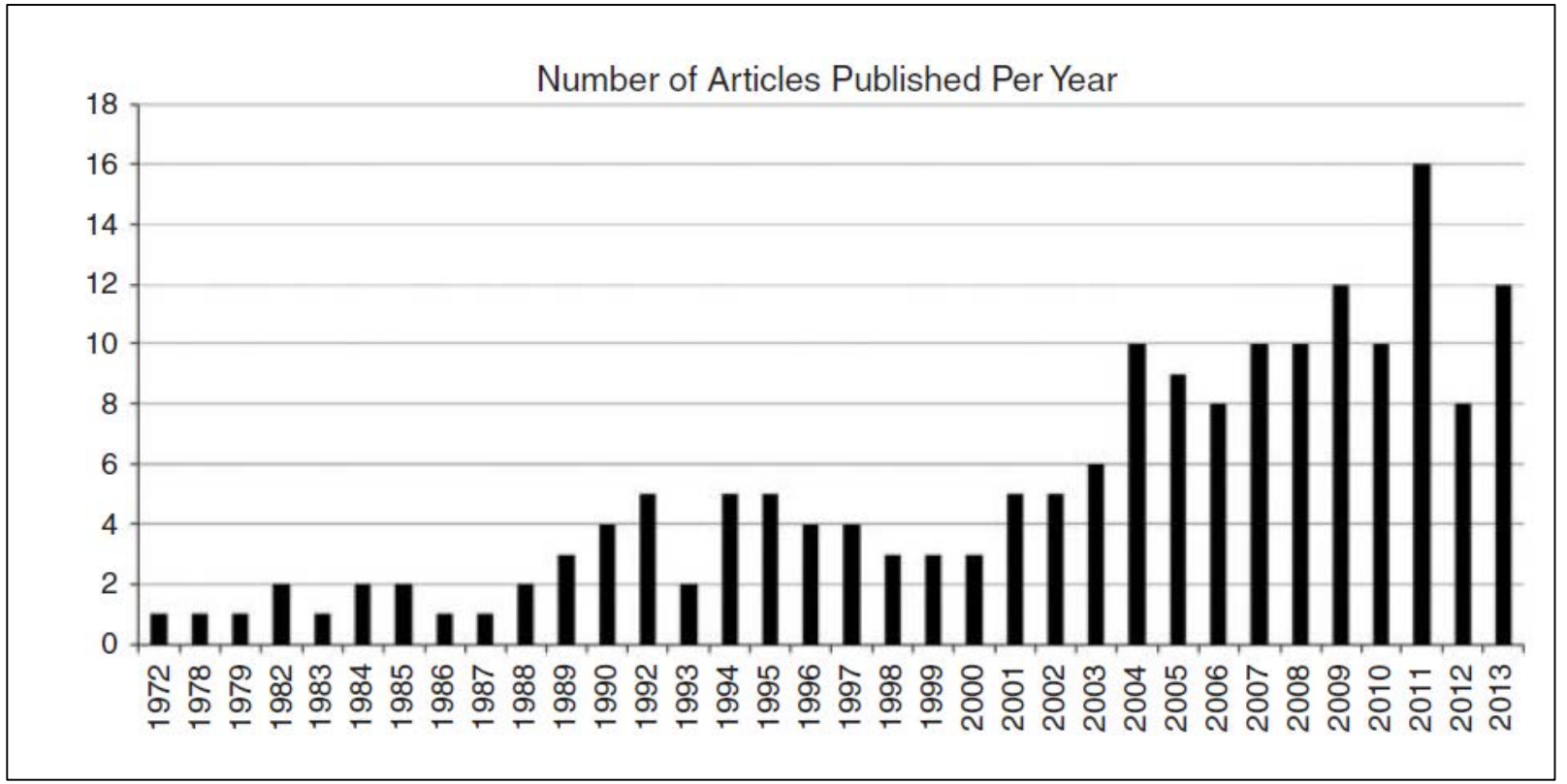
Influence evolution of research topics in service marketing.

Topic	Influence in time period t (u_{it})										
	1992–1993	1994–1995	1996–1997	1998–1999	2000–2001	2002–2003	2004–2005	2006–2007	2008–2009	Mean influence ($\overline{u}_i$)	Growth rate of influence (δu_i)[a]
Service quality	.33	.62	.90	.69	.57	.14	.35	.56	.27	.49	−.04
Service evaluation	−.05	.43	.60	.75	.73	.47	.42	.08	.31	.42	.01
Customer management							−.09	.56	.12	.20	.13
Service profit chain	−.06	−.74	.24	−.42	−.05	.26	.85	.41	.71	.13	.16
Relationship marketing	−.24	−.91	−.22	.11	.36	.37	.21	.32	.86	.10	.18
Complaint management & recovery	−.39	−.01	.34	−.32	.09	.30	−.05	.26	.29	.06	.09
Customer switching			−.23	−.53	−.74	.05	.28	.53	.69	.01	.23
Customer contact employees	−.39	−.15	.05	−.21	−.26	−.13	−.14	−.48	.13	−.18	.04
Nucleus of service research	.02	.11	−.44	−.28	−.05	−.54	−.40	−.35	−.37	−.25	−.07
Online service						−.89	−.43	−.25	.35	−.31	.44
Financial performance			−1.56	−.63	.02	−1.33	.35	.16	.40	−.37	.27
Customer coproduction	−.48	.16	−1.72	−.91	−.58	−.34	−.33	.15	.62	−.38	.16
Service-dominant logic							−.50	−.58	−.14	−.40	.19
Servicescapes	−.25	−.57	−.45	−.37	.02	−.05	−1.37	−.46	−.25	−.42	−.02
Commitment & loyalty			−1.45	−.89	−1.23	−.13	−.16	.01	.28	−.51	.27
Technology infusion			−2.67	−1.70	−.73	.31	.26	.26	.34	−.56	.44

[a] Growth rate based on the slope coefficient of a WLS regression.

Kunz and Hogreve (2011)

Coproduction Research: *On the Rise!*

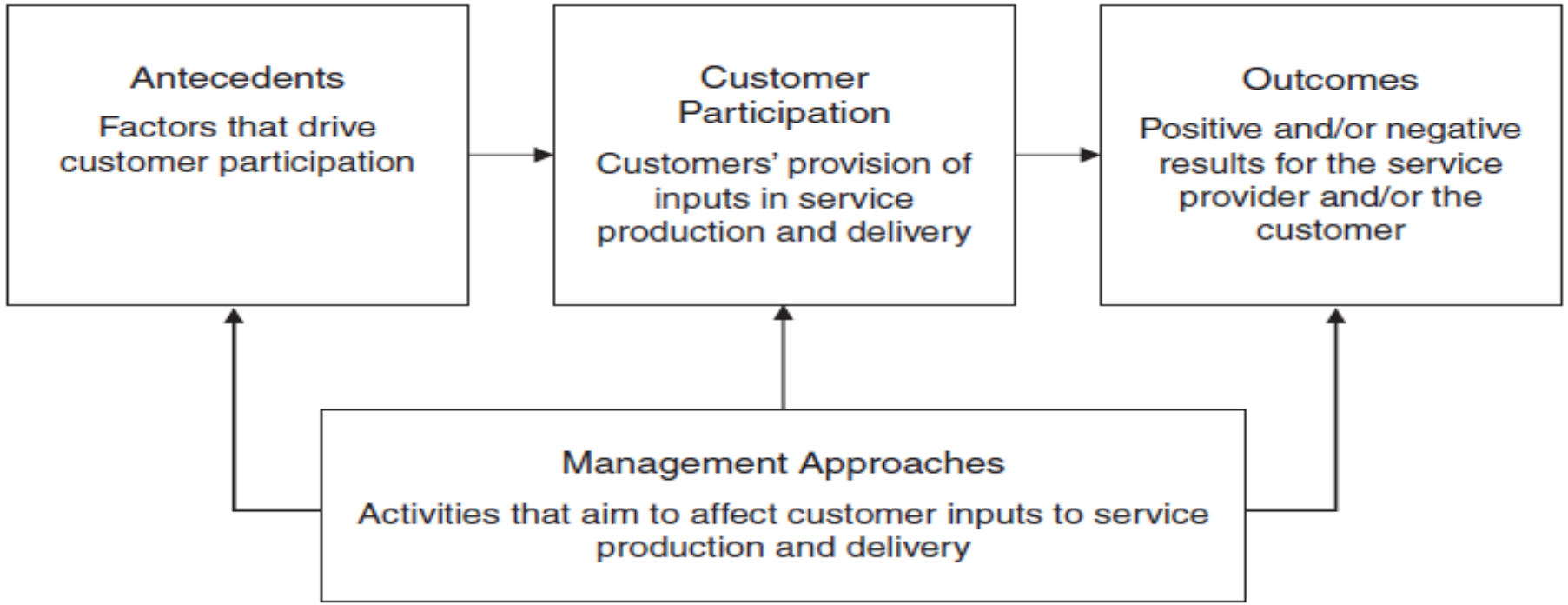


Type of study	Number of articles	Percentage (%)
Empirical	113	62.4
Quantitative	72	39.8
Qualitative	34	18.8
Mixed	7	3.8
Conceptual	68	37.6
Total	181	100.0

Mustak et al. (2016)

Coproduction Research: Antecedents of Customer Coproduction

Antecedents	Inputs	Outcomes
▪ Customer-related antecedents ▪ Provider-related antecedents ▪ Offering-related antecedents ▪ Interaction-related antecedents	▪ Labor / task performance ▪ Information / knowledge ▪ Cooperative Behaviors ▪ Benevolent Behaviors	▪ Positive outcomes for provider ▪ Negative outcomes for provider ▪ Positive outcomes for customer ▪ Negative outcomes for customer (!?)



Mustak et al. (2016)

2

Energy Users = Coproducers?

Smart Grids and the Emerging Role of Coproducing Energy Users

- For smart grids to provide the expected results, electricity consumers should become much more actively engaged in the energy system (Bühler et al. 2015).

- "If in the past, the user had very limited means of knowing how energy was used, today, users can finally understand their energy footprint, resort to automation, and make conscious decisions based on real-time information" (Aiello & Pagani 2016).

- Resource providers give control back to households and communities "to co-manage resource management problems by supporting and enabling new forms of practice;" co-manager role could include (Strengers 2011):

    1. Energy use being monitored
    2. Cheaper tariffs requiring time shifting
    3. Purchase of remote-operated 'smart' appliances (grid operators; apps, etc.)

Smart Grids and the Emerging Role of Coproducing Energy Users

Smart energy monitor for your smart meter - British Gas

https://www.youtube.com/watch?v=oI0_2xoLXzQ

1. Willingness to buy and install
2. Monitor and analyze your data (over time = tracking)
3. Actively plan and manage your usage (on a daily basis)
4. Financial budgeting
5. Technology readiness
6. Link to other devices (e.g., smart phone, smart home)
7. Privacy (daily monitoring by utility)

"Take Control" ➔ RESPONSIBILIZATION*

* = Transfer of responsibility from higher authorities to communities/people who are then called on to take an active role in resolving their own problems

Smart Grids and the Emerging Role of Coproducing Energy Users

Energy Consumer → **Energy Citizen**

1. Energy simply a good to be expended in pursuit of personal goals.
2. Energy's desired role is to be neither seen nor heard = don't want to think about energy.
3. Energy one of many contingences of life (e.g. work; family; finances); many of which are more pressing.
4. Despite concerns about inefficient use (in environmental or financial terms), not seeking greater engagement.
5. Lack of knowledge about functional matters (e.g., pricing, energy demands of different goods/devices).
6. Some affinity for IHDs that provide information in intuitive forms (e.g. color coding), but: merely "doing something" (faking concern about energy use) whilst not "requiring anything" (a.k.a., 'change of no change').

1. Reorientation towards energy as meaningful part in daily practices (vs. not taken-for-granted; mindfulness).
2. Awareness of contradictions of government and industry tasking households with consuming less, prompts distrust of dominant consumer frame.
3. Openness to smart grid schemes: Being monitored by energy company is opportunity to adapt.
4. Have knowledge, meanings, skills, and access to technology to enact their own self-guided supply-responsiveness (e.g., running appliances when the home's solar panels were generating electricity).
5. Active citizen who becomes a 'manager' in the process of consumption as well as, potentially, generation.
6. Users who are involved in both problem and solution.

Goulden et al. (2016)

3

Can Coproduction Research Help?

Energy Research Needs Better Consumer Insights

Skjølsvold et al. (2015, *Energy Research & Social Science, Special Issue Editorial*):

- "If consumers should take on a more active role, it is important to understand the dynamics behind their energy consumption decisions." (…)
- Need to challenge "the idea that a model of strict economic rationality could explain energy behavior. (…) Socio-cultural and psychological factors reveal a much more complex model of decision making…"
- Opening the "black box of users" is even more relevant for their smart energy technology, where consumers are expected to take on a much more active role, and eventually morph into prosumers."

Marketing Could Help …

…but to date, topics related to the "Energiewende" (renewable energy) seem under-researched in Marketing

Philip Kotler

Reinventing Marketing to Manage the Environmental Imperative

Marketers in the past have based their strategies on the assumption of infinite resources and zero environmental impact. With the growing recognition of finite resources and high environmental costs, marketers need to reexamine their theory and practices. They need to revise their policies on product development, pricing, distribution, and branding. The recent financial meltdown has added another layer of concern as consumers adjust their lifestyles to a lower level of income and spending. Companies must balance more carefully their growth goals with the need to pursue sustainability. Increased attention will be paid to employing demarketing and social marketing thinking to meet the new challenges.

Keywords: environment, sustainability, externality costs, financial meltdown, consumer lifestyles, demarketing, social marketing

…ward renewable

Hae-Kyong Bang[1,*], Alexander E. Ellinger[1], John Hadjimarcou[2] and Patrick A. Traichal[2]

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DOI 10.1007/s11747-010-0227-0

Green marketing strategies: an e… and the opportunities they presen…

J. Joseph Cronin, Jr · Jeffery S. Smith · Mark R. Gleim · Edward Ramirez · Jennifer Dawn Martinez

Received: 31 December 2009 / Accepted: 15 September 2010

Abstract As green marketing strategies become increasingly more important to firms adhering to a triple-bottom line performance evaluation, the present research seeks to better understand the role of "green" as a marketing

Contents lists available at SciVerse ScienceDirect

Journal of Business Research

ELSEVIER

Consumer attitude and purchase intention toward green energy brands: The roles of psychological benefits and environmental concern ☆

Patrick Hartmann *, Vanessa Apaolaza-Ibáñez

University of the Basque Country, Spain

ARTICLE INFO

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ABSTRACT

This paper suggests that advertising campaigns directed at increasing consumer demand for green energy should emphasize not only environmental concern and utilitarian benefits, but also psychological brand benefits. The theoretical framework proposes three distinct psychological benefit categories potentially enhancing consumer attitudes toward green energy brands and increasing purchase intentions: warm glow, self-expressive benefits, and nature experiences. A sample of 726 consumers was exposed to experi-
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Green Consumption Behavior Antecedents: Environmental Concern, Knowledge, and Beliefs

Anastasios Pagiaslis
Nottingham University Business School

Athanasios Krystallis Krontalis
Aarhus University

ABSTRACT

The present study adds to the evolving literature on green consumer behavior by examining through statistically robust methods the effect and interrelationships of the key constructs of environmental concern, consumer environmental knowledge, beliefs about biofuels, and behavioral intention (i.e., willingness to use and pay) in the context of biofuels. Data were collected through a survey of 1695 respondents. Hypotheses are based on a literature review and a pilot study, and the conceptual structural model developed is tested through structural equation modeling. Results show that concern for the environment has a positive and direct impact on environmental knowledge, beliefs, and behavioral intention. Also, demographics determine levels of concern for the environment and environmental knowledge. All constructs associate positively with one another delineating that the interdependencies between them are important when accounting for environmental behavior. Future research should validate present results with the use of cross-cultural samples and investigate whether environmental concern increases due to social desirability response bias. © 2014 Wiley Periodicals, Inc.

Expand 'Energy Research' Beyond Focus on Acceptance

M. Broman Toft et al. / Applied Energy 134 (2014) 392–400

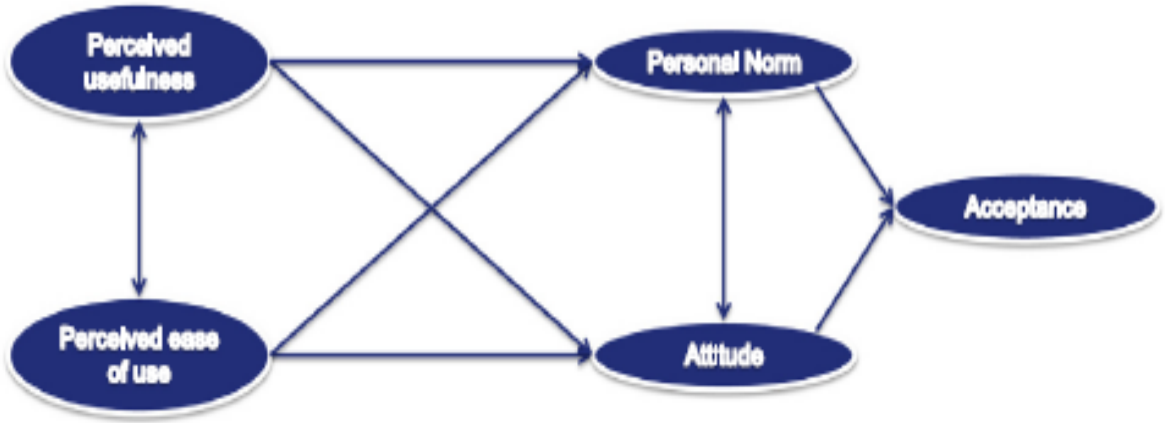
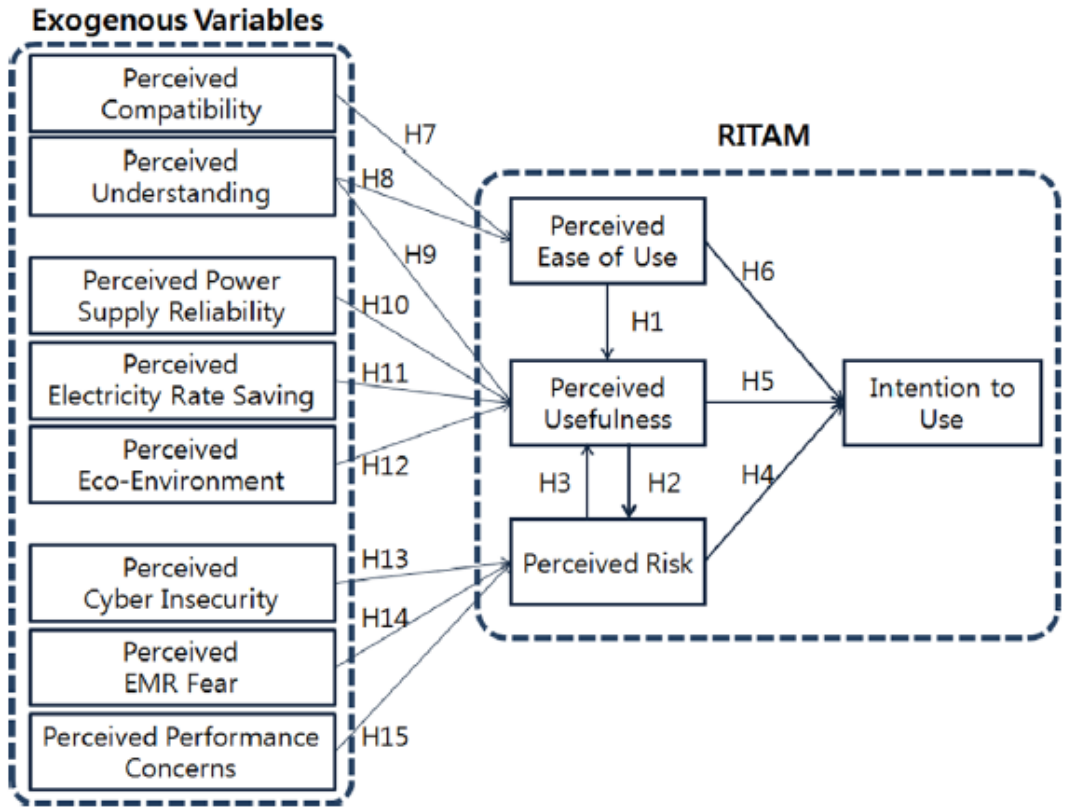


Fig. 1. A Responsible Technology Acceptance Model.



After Adoption → Coproduction Helps Understand Customer Experience

Why Coproduction Research on Renewables?

In Summary:

- Energy research needs to open the consumer 'black-box' (e.g., Skjølsvold et al. 2015)
- 'Energiewende' is under-researched in Marketing
- Expand beyond adoption → study customer experience

- Customer Participation in Service Development/Innovation: When to Coproduce?

- Understanding the Coproduction Experience and Its Complexity
  - Coproduction Intensity (workload)
  - Coproduction Ability (literacy) and preparedness
  - Non-/monetary incentives (eustress) for coproduction

4

Customer Participation in Service Innovation

Customer Participation in Service Development/Innovation

- Skjølsvold and Lindkvist (2015) analyze the design practices in a smart micro grid project with users in Germany and Italy.
  - Originally: engineers planned to involve users in software development processes (so that users accepted the solutions).
  - This goal rested on assumptions about users as being active, techno-savvy, and price sensitive (i.e., technology developers envisioned users to actively use feedback from technologies to change their electricity consumption).
  - But: engineers became concerned whether users would really be of any help when designing the technology (users might not understand the complexity of the technology).
  - Eventually: engineers decided to disengage users from the design sessions altogether! Instead of inviting real users, they decided to make project engineers literally "act as users."

Verbong et al. (2016, p. 27): "More general, on the role of users in smart grids, the main lesson is that **user roles should be taken more seriously in relation to smart grids: experts should no longer regard users exclusively and/or simply as potential barriers to smart grid innovation but also as important stakeholders and potential participants in the innovation process."**

Customer Participation in Service Development/Innovation

Idea generation: customer co-creation versus traditional market research techniques

Lars Witell
CTF – Service Research Center, Karlstad University, Karlstad, Sweden and Industrial Engineering and Management, Linköping University, Linköping, Sweden, and
Per Kristensson, Anders Gustafsson and Martin Löfgren
CTF – Service Research Center, Karlstad University, Karlstad, Sweden

Abstract
Purpose – The purpose of this paper is to understand the differences between proactive and reactive market research techniques during the development of new market offerings. The study focused on the financial and innovative performance of traditional market research techniques, such as focus groups and in-depth interviews, in comparison to more co-creation-oriented techniques that are designed to capture customers' value-in-use.

Customer co-creation in service innovation: a matter of communication?

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Research Center, Karlstad University, Karlstad, Sweden and BI – Norwegian School of Management, Oslo, Norway
Per Kristensson
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Key strategies for the successful involvement of customers in the co-creation of new technology-based services

Per Kristensson
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Jonas Matthing
Vinnova, Research and Innovation for Sustainable Growth, Stockholm, Sweden, and
Niklas Johansson
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Abstract
Purpose – The aim is to propose a conceptual framework consisting of research propositions concerning the key strategies required for the successful involvement of customers in the co-creation of new technology-based services.
Design/methodology/approach – The methodology involves a single case study from which data are derived and analyzed using the grounded theory methodology of "constant comparative analysis." User-generated ideas for future mobile phone services are collected from four user involvement projects and analyzed at several workshops attended by senior managers from telecommunications firms.
Findings – Seven key strategies are identified as being essential for successful user involvement in new product development. Each strategy is described and illustrated in relation to existing theory and presented as a research proposition.

J. of the Acad. Mark. Sci. (2008) 36:138–151
DOI 10.1007/s11747-007-0064-y

ORIGINAL EMPIRICAL RESEARCH

Managing innovation through customer coproduced knowledge in electronic services: An exploratory study

Vera Blazevic • Annouk Lievens

Consumer Cocreation in New Product Development

Wayne D. Hoyer[1], Rajesh Chandy[2], Matilda Dorotic[3], Manfred Krafft[4], and Siddharth S. Singh[5]

Journal of Service Research
13(3) 283-296

DOI: 10.1177/1094670510375604
http://jsr.sagepub.com
SAGE

Abstract
The area of consumer cocreation is in its infancy and many aspects are not well understood. In this article, we outline and discuss a conceptual framework that focuses on the degree of consumer cocreation in new product development (NPD). The authors examine (a) the major stimulators and impediments to this process, (b) the impact of cocreation at each stage of the NPD process, and (c) the various firm-related and consumer-related outcomes. A number of areas for future research are suggested.

Customer Participation in Service Development/Innovation

This figure summarizes the contexts in which customer participation generates more NPD performance.

1. Involving customers in the ideation and launch stages improves new product financial performance directly and indirectly via acceleration of time to market …

2. …but customer participation in the development phase slows down time to market and, in turn, deteriorates new product financial performance.

Chang and Taylor (2016), "The Effectiveness of Customer Participation in New Product Development: A Meta-Analysis," *Journal of Marketing*: 80 (1), 47-64.

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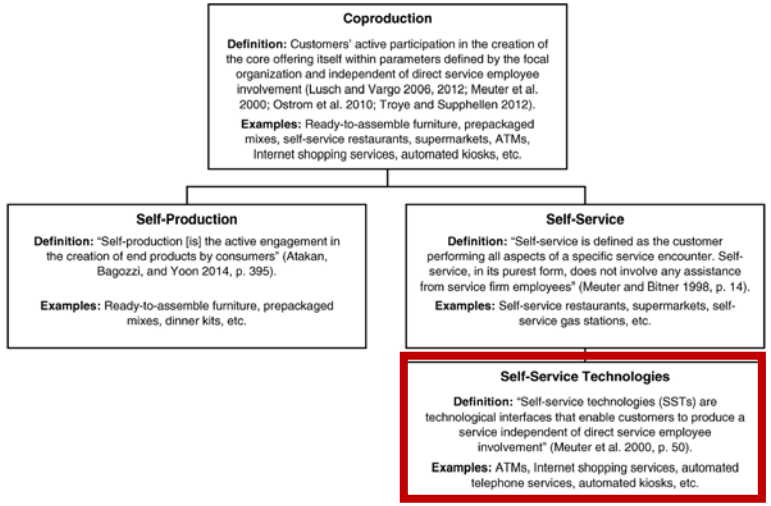
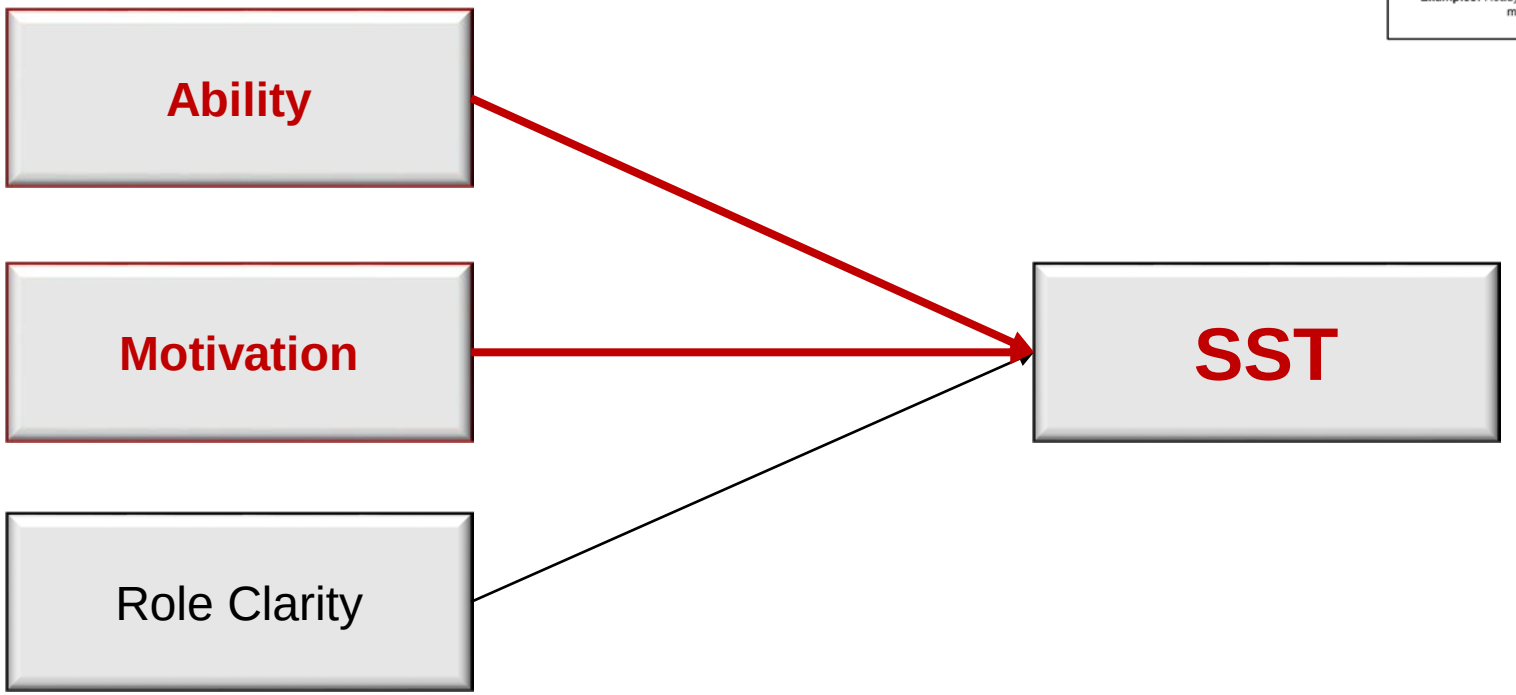
Understanding Coproduction Experiences

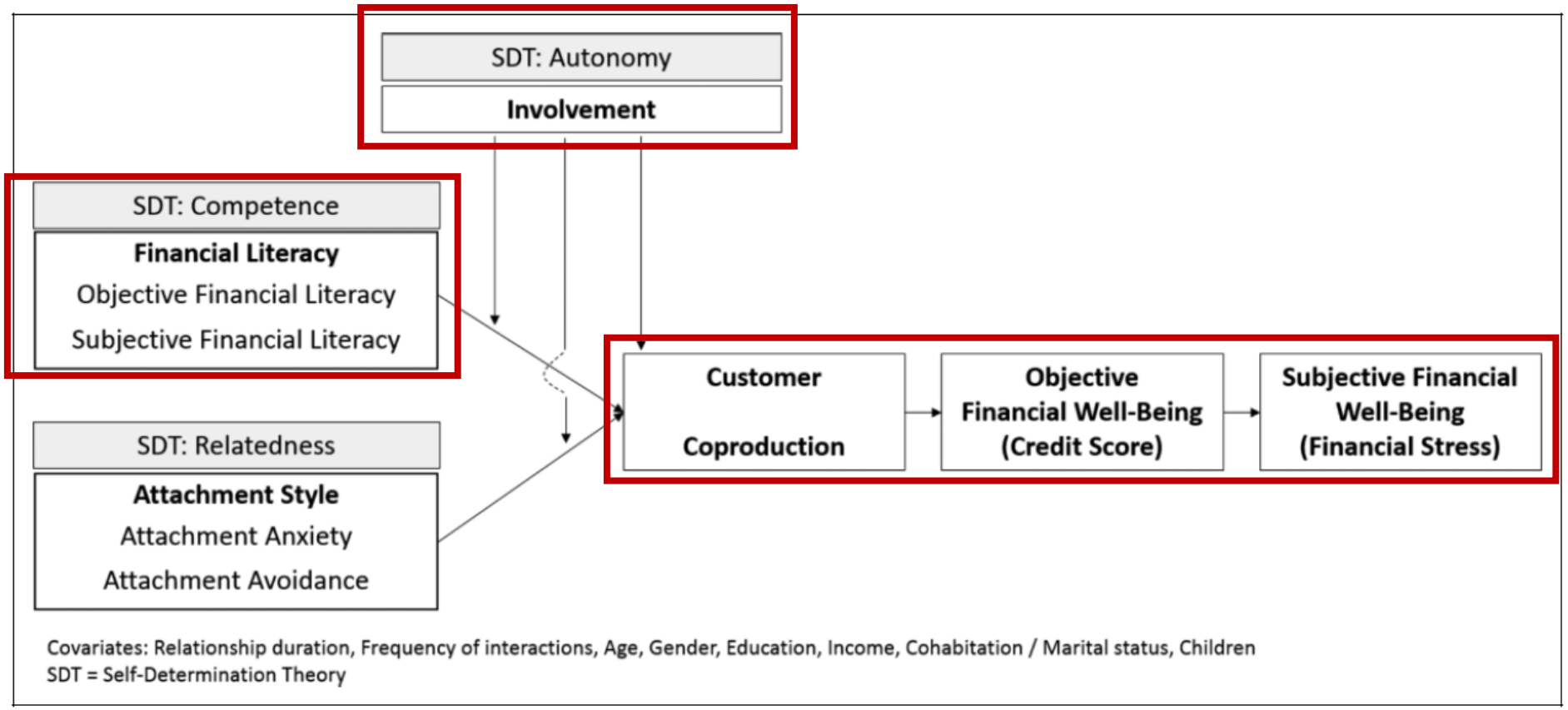
Coproduction and SST





Meuter et al. (2000, 2005)

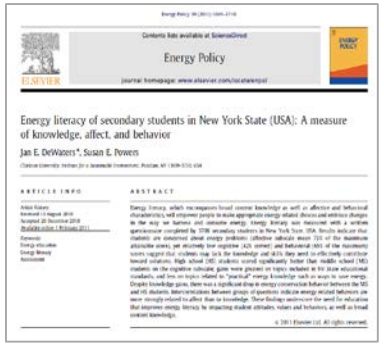
Longitudinal Study: Coproduction as a Pathway to Financial Well-Being



- Coproduction drives objective & subjective outcome
- Service Literacy (obj/subj) drives coproduction
- Moderated by Service Involvement

- **Involvement → Environmental concern**
- **Literacy → Energy Literacy**
- **Outcomes → Objective / subjective**

Research Needed on "Energy Literacy in Coproduction"


Energy Policy

Energy literacy of secondary students in New York State (USA): A measure of knowledge, affect, and behavior

Jan E. DeWaters *, Susan E. Powers


Energy Economics

Energy literacy, awareness, and conservation behavior of residential households

Dirk Brounen *, Nils Kok, John M. Quigley

- What is it?
  - Construct, operationalization, measurement
  - Subjective vs. objective energy literacy
- Effects (moderating / mediating role)
- Effects on subjective experience and objective outcomes
- Linkages to related competencies (financial literacy)

Research Needed on Outcomes of Coproduction in New Energy

Energy Consumer → Energy Citizen

- What are subjective outcomes?
  - "Feel good" factor?
  - Privacy?
- What are objective outcomes?
  - Economic footprint / Usage (kWh)
  - Changes in usage
  - Data monitoring → indices?

5

Understanding Coproduction Experiences

- Coproduction intensity (workload) and enjoyment
- Coproduction ability (literacy) and preparedness
- Non-/monetary incentives (eustress) for coproduction

Activating Customers as Coproducers:

The Roles of Coproduction Workload Level, Service Literacy, and Eustress

Forthcoming in JPP&M

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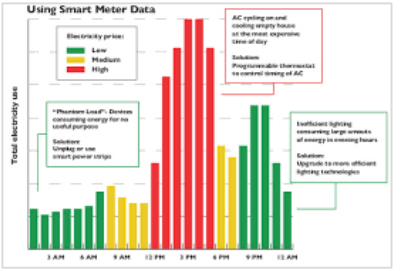
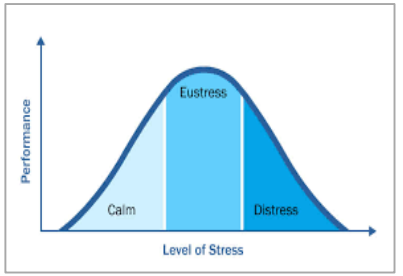
W. P. CAREY SCHOOL of BUSINESS
ARIZONA STATE UNIVERSITY

Implications for Smart Energy Services

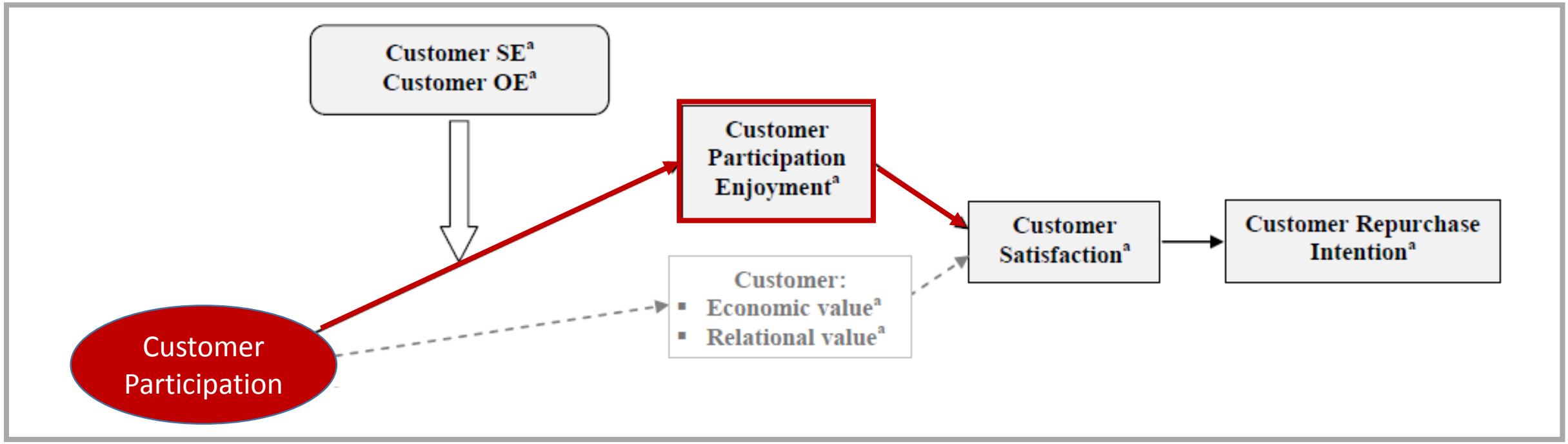
- Again: Need to account for coproduction ability → Energy literacy

- Elicit Eustress in smart grids → Sense of meaningfulness and achievement
  - Improve learning outcomes (self-improvement)
  - Reduce environmental footprint
  - Reduce energy spending / increase financial savings
  - Improve performance (e.g., gamification)





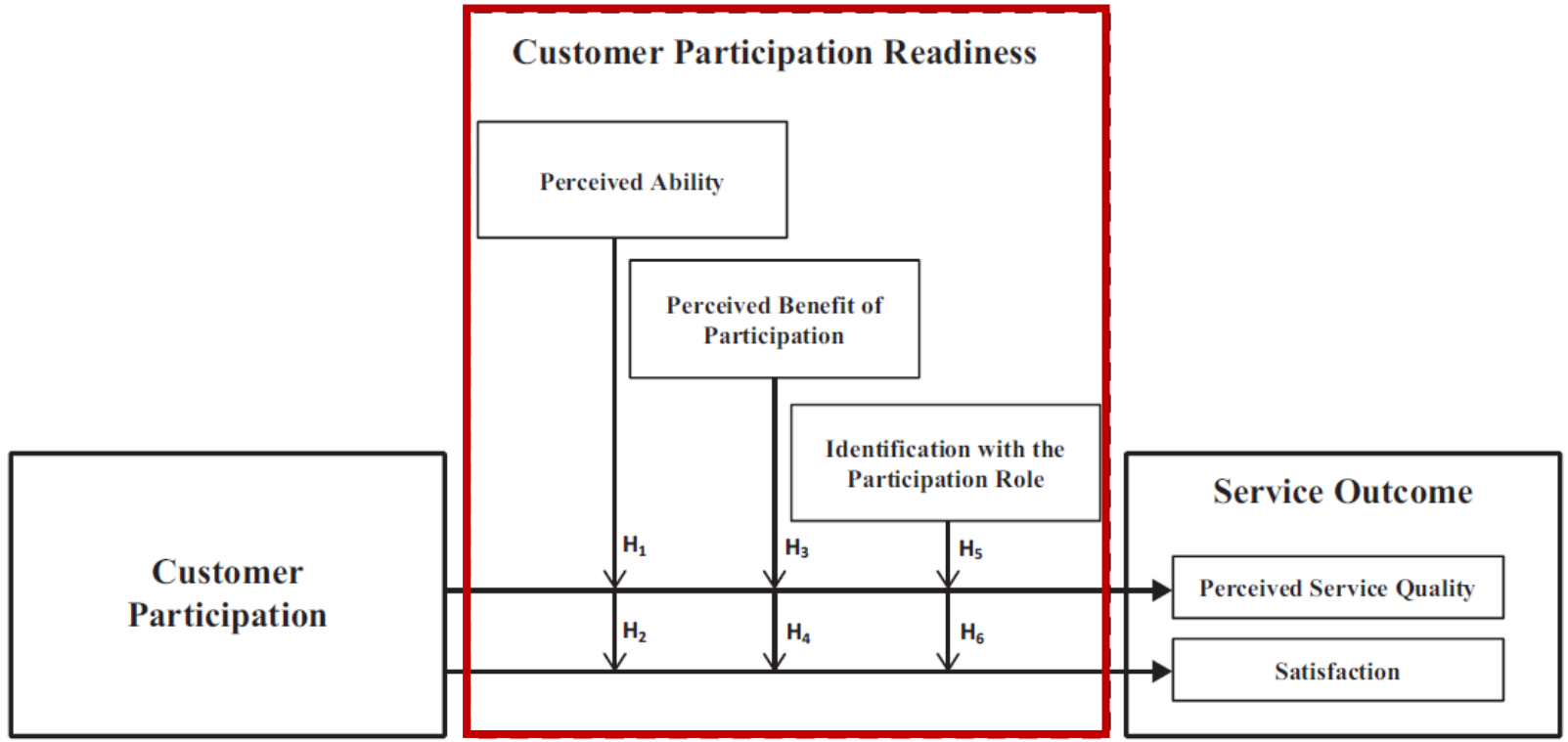
Related Research on Coproduction Enjoyment



- Studies how customers and employees derive enjoyment from customer participation conditional on self/other efficacy.
- Results from 223 client–financial adviser dyads confirm that participation enjoyment (in addition to economic and relational values), mediates the effect of CP on satisfaction, with SE positively moderating CP's impact on enjoyment.

Coproducing Energy Services Should be Enjoyable (if not Eustress-full)!

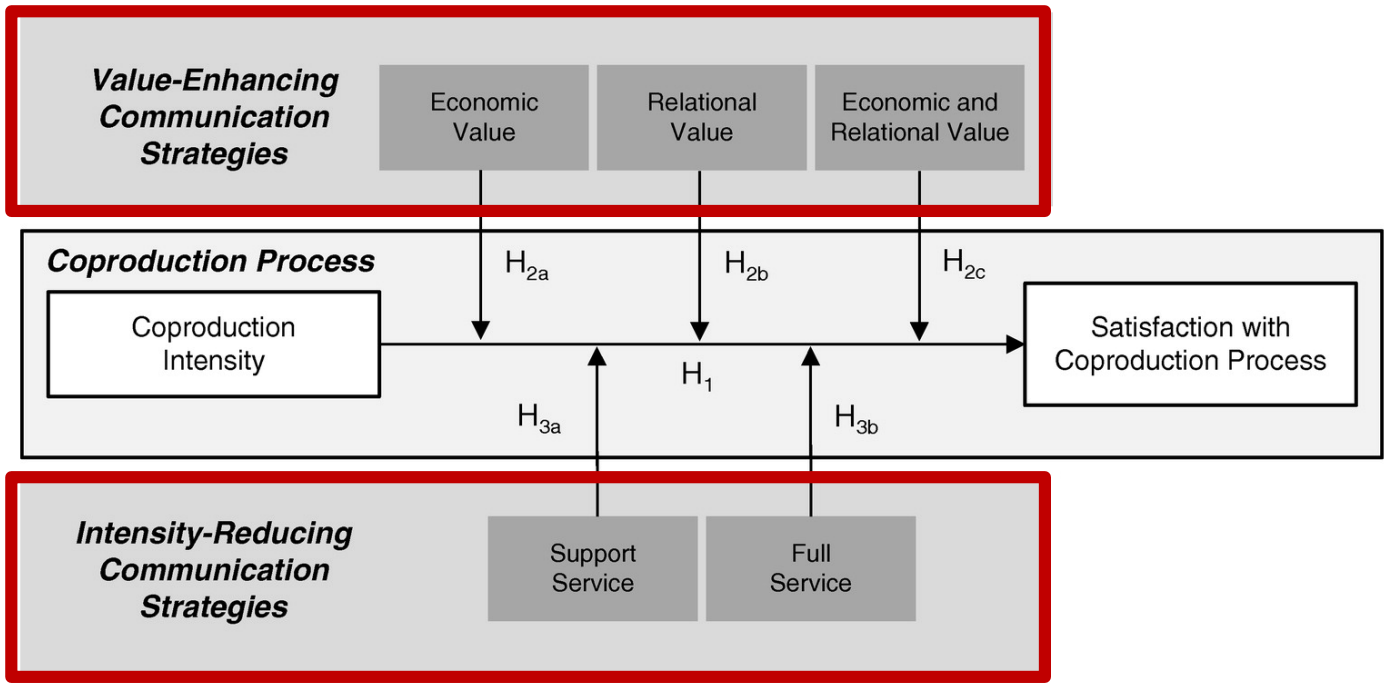
Related Research on Coproduction Readiness



- Results: when CP-readiness is high, increasing CP enhances service outcomes; but: when CP-readiness is low, the effect of CP on service outcomes tapers off or becomes negative.
- The results highlight the contingent nature of CP's effect → *CP could be a double-edged sword!*

Energy Providers Need to Understand Customers' Participation Readiness

Related Research on Coproduction Intensity



- Field experiment: customer-perceived coproduction intensity (effort & time) negatively affects satisfaction with process.
- But: Firms can positively shape customers' perceptions of coproduction processes through communication
  - Emphasize economic value of coproduction (which may help the firm attract more price-sensitive customers)
  - Highlight relational value coproduction (e.g., assembling furniture with family or friends)
  - Offer support (e.g., service hotlines, live chats, and other online tools; find 3rd party provider to assemble).

Energy Providers Can Use Marketing Communication to Buffer Negative Effects

Related Research on Monetary Incentives for Coproduction

Trading Effort for Money: Consumers' Cocreation Motivation and the Pricing of Service Options

Lan Xia[1] and Rajneesh Suri[2]

Table 1. Expectation of Savings and Payments: Cell Means (Standard Deviations).

	Characteristic of Service or Consumer	Saving, US$	Paying, US$
Study 1	Expected	15.73 (3.07)	14.84 (2.88)
	Unexpected	38.46 (2.83)	12.83 (2.94)
Study 2a	High price	67.07 (5.17)	20.76 (5.25)
	Low price	38.48 (5.08)	15.45 (5.08)
Study 2b	High price	38.75 (2.75)	14.91 (2.57)
	Low price	15.27 (2.53)	10.13 (2.66)
Study 3	Budget constraint	11.95 (1.92)	11.40 (1.82)
	No budget constraint	19.65 (1.84)	9.56 (1.84)
Study 4	High expertise requirement	65.52 (6.83)	36.21 (6.81)
	Low expertise requirement	39.84 (6.51)	35.39 (6.61)
Study 5, cable	High labor cost	60.65 (36.30)	38.33 (6.63)
	Low labor cost	36.30 (6.34)	27.05 (6.42)
Study 5, hotel	High labor cost	56.74 (4.70)	30.48 (4.99)
	Low labor cost	34.61 (4.80)	25.72 (4.85)
Study 6a	High price	55.65 (3.18)	17.14 (3.24)
	Low price	17.11 (3.24)	8.33 (3.13)
Study 6b	Self-effort	32.38 (2.64)	20.00 (2.77)
	Other effort	27.69 (2.73)	11.43 (2.78)

- Problem: Not all consumers may be intrinsically motivated to perform the effort required for co-creation options

- Eight studies (across service settings) show that consumers seek more compensation for their efforts than amounts they are willing to pay providers (→ Endowment Effect!).

- Moderators of the differences between the amounts consumers are willing to pay and expect to save by performing coproduction tasks:
  - Characteristics of service options (e.g., expectations of the effort required, cost of labor in a market)
  - Characteristics of consumers (budget constraints, expertise)

6

Concluding Remarks

Coproduction and Energy Services = Potential for Win-Win

1

Coproduction Perspective *Goes Beyond Mere Acceptance of Renewable Energy Services!*

- Studying coproduction experiences helps open the 'black box' of energy consumers
- Goal: Understand customers' coproduction ability and motivation
  - Service Literacy: Combines Energy Literacy & Technology Literacy & Financial Literacy
  - Enjoyment & Eustress & Learning → Gamification
  - Moderating role of framing opt-in/opt-out

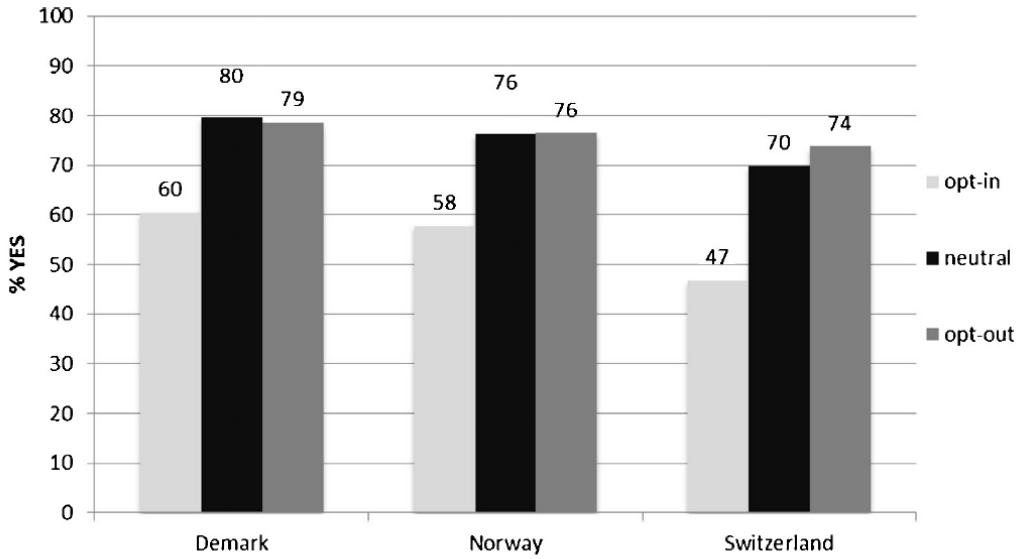


Fig. 1. Acceptance rates in three countries in the opt-in, opt-out and neutral frames.

Toft et al. (2014)

Coproduction and Energy Services = Potential for Win-Win

2 ***Broaden Units/Focus of Analysis:***

- Regions: Europe well-represented; US and developing world under-represented (CO_2 mass-producers)

- Units of analysis: Individual → HH → Neighborhoods → Micro-grids

Coproduction and Energy Services = Potential for Win-Win

3

Opportunity for Marketing Theory:

- Extant literature: Consumer segments & lead-user theory, theory of innovation diffusion
- Different unit of analyses need different theory: **Social Practice Theory**
  - Describes how individuals in different societies shape and are shaped by their cultural atmosphere
  - Changing electricity demand means transforming, technologically-mediated social practices (Strengers 2012)

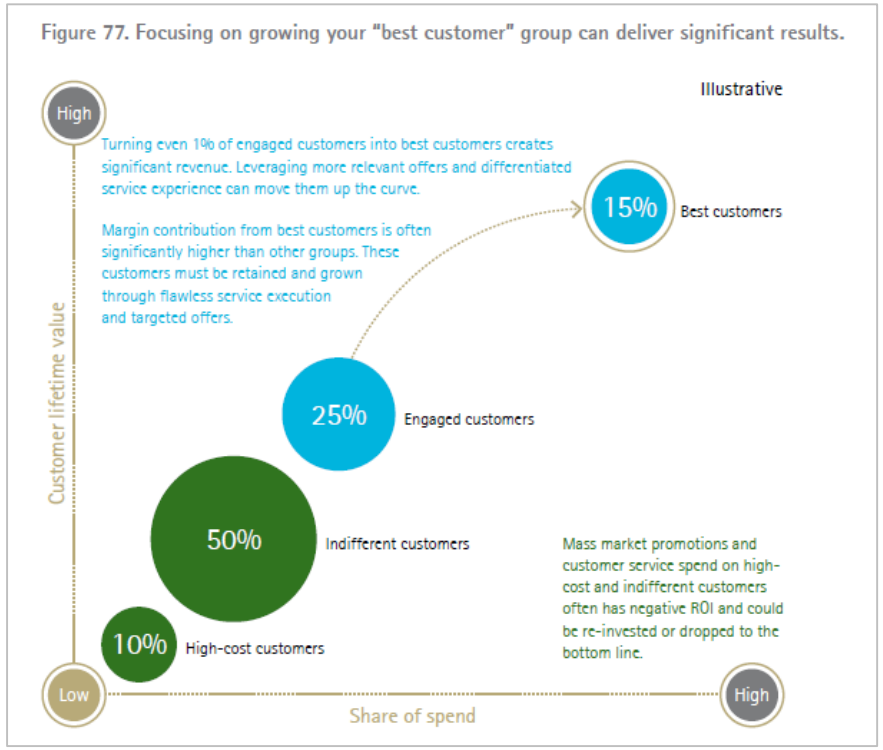
Coproduction and Energy Services = Potential for Win-Win

4 *DATA!*

- Extant literature: studies based on qualitative methods (interviews, focus groups) or limited quantitative methods (cross-sectional surveys, scenario-based).
- What is needed in terms of quantitative approaches: capture actual experiences and behavior (e.g. field experiments, secondary data, longitudinal studies).
- Measure both: subjective and objective outcomes of coproduction.
- Crucial: marketers collaborating with providers (data!).

Coproduction and Energy Services ➔ ETHICAL & POLICY ASPECTS!

Verbong et al. (2016, 29): “Smart grids will introduce new potential risks and contested issues as well, including privacy issues, cyber security and data ownership. **A larger involvement of users also raises new issues like the potential exclusion of certain groups of users (access to smart grid) and responsibility for (parts of the) smart energy system.”**



Accenture (2014)