

BRAVE NEW WORLD

*Wie Roboter unseren
Alltag erobern*

UNIV.-PROF. DR. STEFANIE PALUCH



REFERENTIN



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PROFIL

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- 2011 Promotion am Lehrstuhl für Marketing an der TU Dortmund Dissertation zum Thema Remote Services
- 2012-2014 Juniorprofessorin DTM und W3-Vertretung Innovationsmanagement
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- 2018 Mitglied des Vorstands im CLS (Center für Lehr- und Lernservices) der RWTH Aachen University
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Forschungsinteressen:

- Service Automatisierung und intelligente Dienstleistungen
- Marketing von innovativen und digitalen Dienstleistungen
- Wahrnehmung und Akzeptanz von Service Robotern

Brave new world: service robots in the frontline

Brave new world

907

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Abstract

Purpose – The service sector is at an inflection point with regard to productivity gains and service industrialisation similar to the industrial revolution in manufacturing that started in the eighteenth century. Robotics in combination with rapidly improving technologies like artificial intelligence (AI), mobile, cloud, big data and biometrics will bring opportunities for a wide range of innovations that have the potential to dramatically change service industries. The purpose of this paper is to explore the potential role service robots will play in the future and to advance a research agenda for service researchers.

Design/methodology/approach – This paper uses a conceptual approach that is rooted in the service, robotics and AI literature.

Findings – The contribution of this paper is twofold. First, it provides a definition of service robots, describes their key attributes, contrasts their features and capabilities with those of frontline employees, and provides an understanding for which types of service tasks robots will dominate and where humans will dominate. Second, this paper examines consumer perceptions, beliefs and behaviors as related to service robots, and advances the service robot acceptance model. Third, it provides an overview of the ethical questions surrounding robot-delivered services at the individual, market and societal level.

Practical implications – This paper helps service organizations and their management, service robot innovators, programmers and developers, and policymakers better understand the implications of a ubiquitous deployment of service robots.

Originality/value – This is the first conceptual paper that systematically examines key dimensions of robot-delivered frontline service and explores how these will differ in the future.

Keywords Consumer behavior, Ethics, Artificial intelligence, Privacy, Service robots, Markets
Paper type Conceptual paper

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Article

Service Robots: Drivers of Perceived Responsibility for Service Outcomes

Moritz Jörling^a, Robert Böhm^a, and Stefanie Paluch^a

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Abstract

The use of service robots is on the rise. Characterized by technology autonomy with a physical embodiment, service robots have a higher level of social presence than other service technologies. This research focuses on one specific phenomenon of such social encounters: attribution of responsibility. Study 1 explores potential antecedents driving the attribution of responsibility in encounters with service robots. We derive a research model, which is tested and expanded in three subsequent scenario-based experiments. In Study 2, we find that technology's autonomy decreases perceived behavioral control over the service robot, which in turn decreases perceived responsibility for positive outcomes but not for negative outcomes. Study 3 indicates that perceived ownership of the service robot accounts for the high responsibility for negative outcomes in respect of perceived behavioral control. In Study 4, we show that the potential to interrupt the service robot's autonomy increases perceived behavioral control and perceived responsibility for positive outcomes. Our results provide theoretical implications for responsibility perceptions and practical implications for customer satisfaction with service robots.

Keywords

service robots, outcome responsibility, perceived behavioral control, psychological ownership

"The emergence of service robots is likely to be among the most dramatic evolutions in the service realm" (Mende 2017). By 2020, an estimated 32.4 million units of service robots will be sold for domestic tasks alone (i.e., "vacuuming floors, mowing lawns), representing a market value of US\$11.3 billion and a growth rate of 30% to 35% per year ("Executive Summary World Robotics 2017 Service Robots" 2017). In other domains, service robots are set to enter or have just entered the market, for example, in mobility and transportation. A study by the Boston Consulting Group in collaboration with the World Economic Forum projects that by 2035, partially and fully driverless cars will make up 25% of the worldwide car market ("Autonomous Vehicle Adoption Study" 2017). These forecasts leave little doubt that service robots will shape and change the future of the service sector.

Clearly, customers' perceptions of service technology and its related service outcome are relevant for their evaluation of and satisfaction with the service encounter (Bitner 1990; Iglesias 2009; Tansik, Mittal, and Rose 2004). While the majority of research about service robots has addressed technical aspects, research on customers' perceptions of outcomes obtained by service robots is more limited but much needed (Kunz et al. 2018; Mende 2017).

We attempt to fill this gap and our contribution is 3-fold. First, we theoretically analyze (encounters with) service robots in comparison to other service technologies, leading to our initial research model. In a nutshell, we argue that due to their physical embodiment and high level of agency, service robots

are perceived as social agents (van Doorn et al. 2017). This means that the service encounter is a social interaction in which the responsibility for service outcomes may be attributed to either of the interaction partners, that is, to the service customer or the service robot (Heider 1958; Kelley 1967; Meuter et al. 2000; Moon 2003). Responsibility is a relevant factor for understanding postconsumption reactions (Weiner 2000), such as the evaluation of services (Bitner 1990), the willingness to pay for a service, and brand perception (Siem, Heiser, and McQuitty 2009). Additionally, it is important for companies to consider attributions of responsibility, particularly when they are responding to potential failures of their service robots. The purpose of our research, therefore, is to identify and investigate antecedents of internal robots (i.e., the service customer) versus external (i.e., to the service robot) attributions of responsibility for service outcomes in encounters with service robots.

As a second contribution, we investigate the determinants and psychological processes of attributions of responsibility for outcomes obtained by service robots, using both qualitative and

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“My colleague is a robot” – exploring frontline employees' willingness to work with collaborative service robots

My colleague is a robot

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Abstract

Purpose – As service robots increasingly interact with customers at the service encounter, they will inevitably become an integral part of employee's work environment. This research investigates frontline employee's perceptions of collaborative service robots (CSR) and addresses a new framework, willingness to collaborate (WTC), to better understand employee-robot interactions in the workplace.

Design/methodology/approach – Drawing on appraisal theory, this study employs an exploratory research approach to investigate frontline employees' cognitive appraisal of service robots and their WTC with their respective counterparts in service contexts. Data collection consisted of 36 qualitative problem-oriented interviews. Following an iterative thematic analysis, the authors articulate a research framework of frontline employees' WTC with service robots.

Findings – First, this study demonstrates that the interaction between frontline employees and service robots is a multistage appraisal process based on adoption-related perceptions. Second, it identifies important attributes across three categories: employee, robot and job attributes that provide a foundation to understand the appraisal of CSRs. Third, it presents four employee personas (supportive embracer, master and solver) that provide a differentiated perspective of how service employee-robot collaboration may differ.

Practical implications – The article identifies important factors that enable and restrict frontline service employees' (SFEs) WTC with robots.

Originality/value – This is the first paper that investigates the appraisal of CSRs from the perspective of frontline employees. The research contributes to the limited research on human-robot collaboration and expands existing technology acceptance models that fall short to explain post-adoption coping behavior of service employees in response to service robots in the workplace.

Keywords Robotization, Collaborative service robots, Human-robot interaction, Willingness to collaborate, Frontline service employees

Paper type Research paper

Introduction

The robots are coming. Industry reports estimate that the market size for service robotics is likely to grow from \$37 billion in 2020 to over \$102 billion by 2025 with a Compound Annual Growth Rate (CAGR) of 22.6% (Markets and Markets, 2020). While robots have been utilized for years behind the scenes across assembly lines, warehouses and order fulfillment centers

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Service robots, customers and service employees: what can we learn from the academic literature and where are the gaps?

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Abstract

Purpose – Robots are predicted to have a profound impact on the service sector. The emergence of robots has attracted increasing interest from business scholars and practitioners alike. In this article, we undertake a systematic review of the business literature about the impact of service robots on customers and employees with the objective of guiding future research.

Design/methodology/approach – We analyzed the literature on service robots as they relate to customers and employees in business journals listed in the Financial Times top 50 journals plus all journals covered in the crossref library. SERVSAFE literature alerts.

Findings – The analysis of the identified studies yielded multiple observations about the impact of service robots on customers (e.g. overall change in transaction acceptance and usage of service robots), characteristics of service robots and anthropomorphism, and potential for enhanced and deteriorated service experiences) and service employees (e.g. employee benefits such as increased productivity and job satisfaction, potential negative consequences such as loss of autonomy and a range of negative psychological outcomes; opportunities for human-robot collaboration; job insecurity and robot-related upskilling and development requirements). We also conclude that current research on service robots is fragmented, is largely conceptual in nature and focused on the initial adoption stage. We feel that more research is needed to build an overarching theory. In addition, more empirical research is needed, especially on the longer-term usage of service robots on actual behaviors, the well-being and potential downsides and (ethical) risks for customers and service employees.

This paper was accepted and presented at The 10th SERVSAFE conference at HECG School of Management, Paris in 2018. It was subsequently invited to the SERVSAFE Special Section of JSTP. SERVSAFE Co-chairs: Linda Audek and Bart Lariviere guest edited this special section. The first and second authors contributed equally to this manuscript.

Impact of robots on customers and service employees

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Service robots, agency and embarrassing service encounters

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Robots in embarrassing service encounters

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Abstract

Purpose – Extant research mainly focused on potentially negative customer responses to service robots. In contrast, this study is one of the first to explore a service context where service robots are likely to be the preferred service delivery mechanism over human frontline employees. Specifically, the authors examine how customers respond to service robots in the context of embarrassing service encounters.

Design/methodology/approach – This study employs a mixed-method approach, whereby an in-depth qualitative study (study 1) is followed by two lab experiments (studies 2 and 3).

Findings – Results show that interactions with service robots attenuated customers' anticipated embarrassment. Study 1 identifies a number of factors that can reduce embarrassment. These include the perception that service robots have reduced agency (e.g. are not able to make moral or social judgements) and emotions (e.g. are not able to have feelings). Study 2 tests the basic model and shows that people feel less embarrassed during a potentially embarrassing encounter when interacting with service robots compared to frontline employees. Finally, Study 3 confirms that perceived agency, but not emotion, fully mediates frontline counterparts' employees' no robot effects on anticipated embarrassment.

Practical implications – Service robots can add value by reducing potential customer embarrassment because they are perceived to have less agency than service employees. This makes service robots the preferred service delivery mechanism for at least some customers in potentially embarrassing service encounters (e.g. in service medical contexts).

Originality/value – This study is one of the first to examine a context where service robots are the preferred service delivery mechanism over human employees.

Keywords Service robots, Artificial intelligence, Agency, Embarrassment, Service encounter

Paper type Research paper

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The authors are grateful to the guest editor Arne DeKreyer and the two anonymous reviewers who provided valuable feedback and guidance to earlier versions of this article. Furthermore, this research was presented at the following meetings and conferences: the Research Seminar Series, Marketing Department at Kings College Business School (London, April 2021), the 50th European Marketing Conference (May 2021), the 2021 AMS Virtual Annual Conference (June 2021), the 2021 Frontiers in Service Conferences (July 2021) and the 2021 ABSR conference (July 2021). The authors are grateful to the organizers and participants for the lively discussions, comments and ideas generated during and after the presentations. All authors contributed equally to this article.

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ORIGINAL ARTICLE

Mechanisms and Consequences of Anthropomorphizing Autonomous Products

The Role of Schema Congruity and Prior Experience

Moritz Jörling^a, Robert Böhm^a, and Stefanie Paluch^a

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Abstract In the present research, we test the mechanisms (Studies 1a and 1b, conducted online), consequences, and limitations (Study 2, conducted in the lab) of anthropomorphizing autonomous (vs. manual) products. Building on previous theoretical and empirical research on product anthropomorphism, we argue and find that anthropomorphism is perceived to be more congruent with autonomous products than with manual products. Furthermore, we show that anthropomorphism increases the liking of autonomous products, given that consumers have no prior experience with autonomous products. Increased liking of autonomous products due to anthropomorphism, in turn, increases purchase intentions and positive evaluations of outcomes obtained by the autonomous product. The findings are discussed with regard to optimal marketing and design of autonomous products.

Keywords Product autonomy · Anthropomorphism · Schema congruity · User experience · Product Liking

Electronic supplementary material The online version of this article (<https://doi.org/10.1007/s11364-020-00140-3>) contains supplementary material, which is available to authorized users.

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SPECIAL ISSUE “Artificial Intelligence and Robots in Service Interactions”

Artificial Intelligence and Robots in the Service Encounter
Stefanie Paluch and Jochen Wirtz

Robots on Blockchain: Emergence of Robotic Service Organizations
Nobuyuki Fukawa

Frontline Employees' Acceptance of and Resistance to Service Robots in Stationary Retail – An Exploratory Interview Study
Patrick Meyer, Julia M. Jonas, and Angela Roth

How Service Quality Influences Customer Acceptance and Usage of Chatbots?
Lars Meyer-Waarden, Giulia Pavone, Thanida Pocharontorn, Piyumi Prayatsap, Madfis Ratinaud, Agathe Tison, and Sarah Torné

Siri, Do I like You? Digital Voice Assistants and Their Acceptance by Consumers
Karolina Ewers, Daniel Baier, and Nadine Hohn



Was erwartet Sie heute Abend?

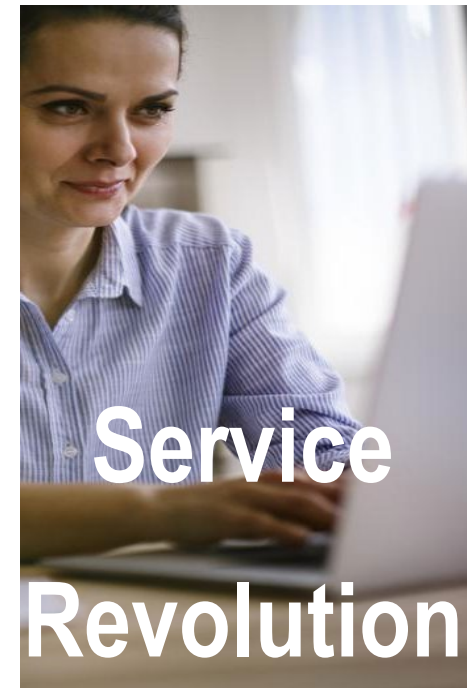
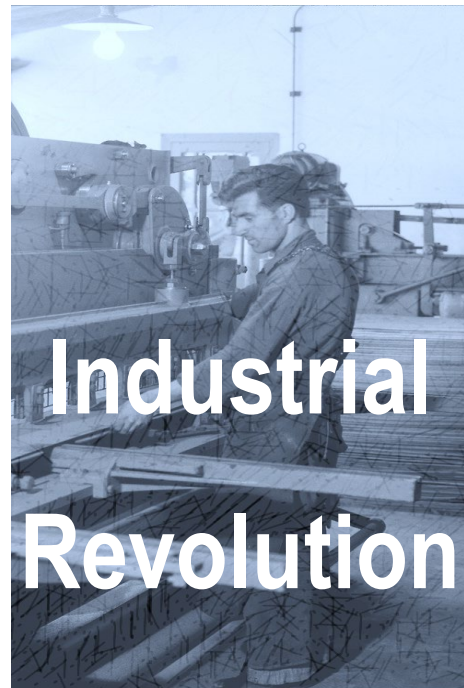
1 Einführung Intelligente Automatisierung & Service Roboter

2 Service Roboter als Mitarbeiter in der Arbeitswelt der Zukunft

3 Peinliche Service-Begegnungen mit Robotern

4 Service Roboter Strategien

Die Dienstleistungsrevolution wird durch Intelligente Automatisierung vorangetrieben



- Die Service Revolution wird den Dienstleistungssektor dramatisch verändern.
- Ähnlich wie bei früheren Revolutionen werden qualitativ hochwertige "Massen"-Dienstleistungen zu niedrigen Kosten produziert werden, die unseren Lebensstandard drastisch verbessern können.
- Die Intelligente Automatisierung des Dienstleistungssektors wird Dienstleistungen zugänglicher machen und zu einer nachhaltigeren, gleichberechtigteren und besseren Welt beitragen.



Manuelle Kontrollen am Flughafen

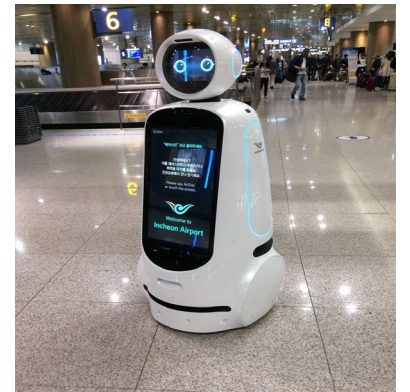
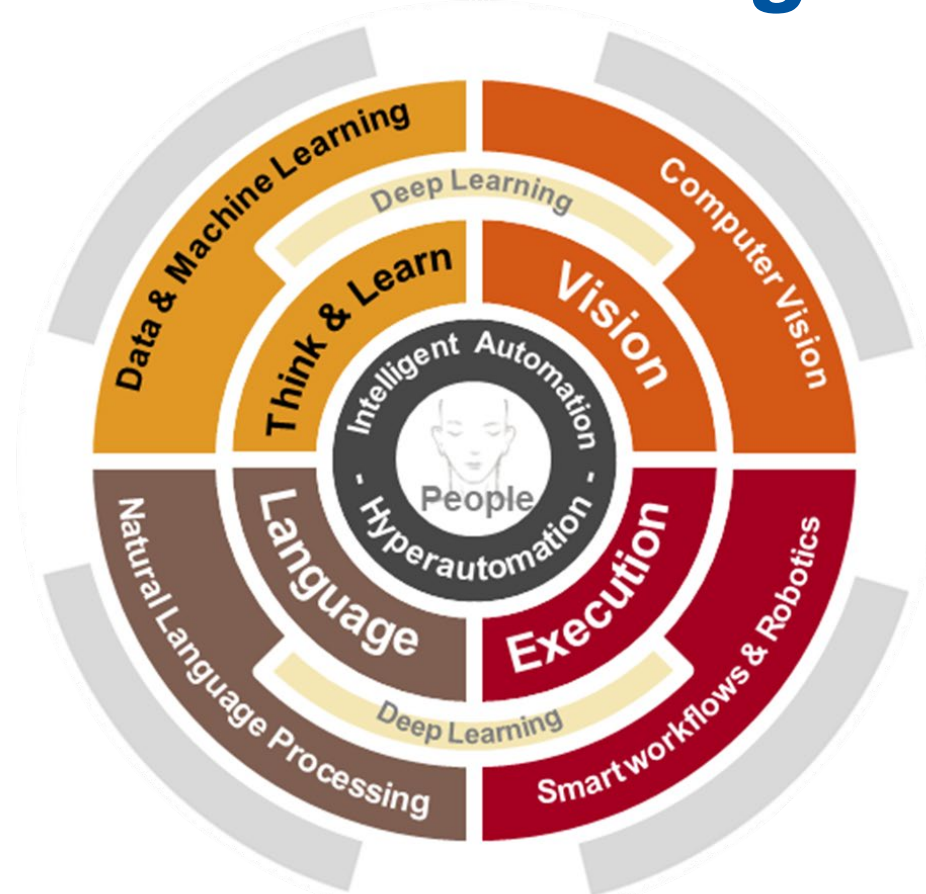


Digitale Kontrollen am Smart Gate



**Gesichtserkennung am Gate mit
Biometrischen Daten**

Intelligent Automatisierung basiert auf vier Fähigkeiten

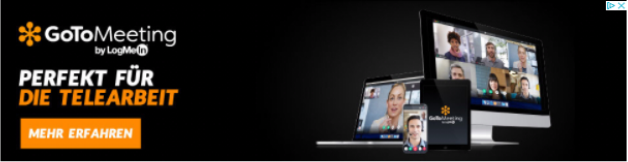


Zukünftig werden diese Fähigkeiten und Technologien kombiniert, um Synergien zu erzeugen. Beispiel ANZ Bank NZ nutzt end-to-end Prozesse mit IA und kann dadurch 90 % Zeitersparnis und 80 % Kostenersparnis erreichen.



Hyundai debuts DAL-e: your future customer service robot

It's cute, but are we ready to accept the help of robots instead of humans?



By [Charlotte Osborne](#) for [Between the Lines](#) | January 25, 2021 – 09:38 GMT (09:38 GMT) | Topic: [Innovation](#)



Hyundai



The Washington Post

TECH

Robots check travellers' body temperatures at Incheon airport

PUBLISHED : 10 JUN 2020 AT 17:10

WRITER: PULSE



A passenger uses an automatic body temperature robot at Incheon airport. (Incheon Airport Co via Pulse photo)

The Washington Post

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Robots are disinfecting hotels during the pandemic. It's the tip of a hospitality revolution.



(Mark Alkonata Brooks/The)

Los Angeles Times

TRAVEL

New robot at Mandarin Oriental in Las Vegas offers directions and can hum a little



Stationed near the hotel's concierge desk, Pepper is the newest attraction at the Mandarin Oriental Las Vegas. The robot is intended to inform and entertain guests. (Leinani Shak Photography)

Japan

Associated Press

Thu 16 Jul 2015 03:53 BST

2,405 101

Japan's robot hotel: a dinosaur at reception, a machine for room service

The Henn na - or Weird Hotel - has opened in Japan where guests check in with robots which also deliver their luggage to rooms



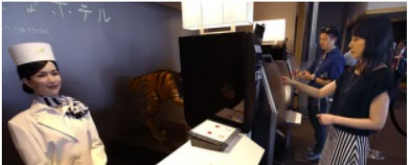
Robot staff are ready to welcome guests at Japan's new hotel. Link to video Guardian

The English-speaking receptionist is a vicious-looking dinosaur, and the one speaking Japanese is a female humanoid with blinking lashes.

"If you want to check in, push one," the dinosaur says. The visitor still has to punch a button on the desk and type in information on a touch panel screen.

From the front desk to the porter that is an automated trolley taking luggage to the room, this hotel in south-western Japan, aptly called Weird Hotel, is "manned" almost totally by robots to save labour costs.

Hideo Sawada, who runs the hotel as part of an amusement park, insists using robots is not a gimmick but a serious effort to use technology and achieve efficiency.



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UNIVERSAL ROBOTS

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Amazon's Astro robot has been spotted in the wild... bringing people beer

Users are showing off what the \$1,450 Amazon smart home robot can really do

By [Jennifer Pattison Tuohy](#) | [@jp2e](#) | Feb 22, 2022, 5:28pm EST

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SERVICE ROBOTER



physisch



Service Roboter sind systembasierte, autonome und anpassungsfähige Schnittstellen, die mit Kunden interagieren, kommunizieren und Dienstleistungen für Kunden erbringen (Wirtz, Patterson, Kunz, Gruber, Lu, Paluch & Martins 2018).

Service Roboter sind Informationstechnologie in einer physischen Verkörperung und bieten maßgeschneiderte Dienstleistungen, indem sie physische und nicht-physische Aufgaben mit einem hohen Maß an Autonomie ausführen (Jörling, Böhm & Paluch 2019).



25. Feb. 2021 | 09:50 Uhr | von Simon Nördinger
Aktualisiert am: 17. Feb. 2022

Zwei Arbeitspsychologen geben Tipps

Der Roboter ist da! Wie Sie mit dem neuen Kollegen umgehen

Der Roboter ist da. Und jetzt? Zwei Arbeitspsychologie-Experten geben Tipps, wie Sie Ihre Mitarbeiter optimal auf die Mensch-Roboter-Kollaboration vorbereiten.



Der etwas andere Kollege. Was Roboter arbeitspsychologisch mit Mitarbeitern machen, lesen Sie im Beitrag. Symbolbild:
stock.adobe.com/LIGHTFIELD STUDIOS

<https://www.kollegroboter.de/industrie/der-roboter-ist-da-wie-sie-mit-dem-neuen-kollegen-umgehen-361.html>

Roboter im Alltag: Der Kollege

25.06.2021 08:00 Uhr Hans-Arthur Marsiske



Damit Mensch und Roboter als Kollegen zusammenarbeiten können, muss auch das soziale Miteinander stimmen.
(Bild: Yakobchuk Viacheslav / Shutterstock.com)

Können Roboter gute Kollegen sein, indem sie Arbeit abnehmen, sich sozial verhalten und einem unterhaltsamen Schwätzchen zwischendurch nicht abgeneigt sind?

WISSEN & UMWELT

Das gibt
spuckt c
Nick Bo
überhau
keine Hi
bereits c
Überleg
verhelfe

Roboterhund erkundet die Ruinen von Pompeji

Der vierbeinige Roboter Spot soll einsturzgefährdete Tunnel, die von Grabräubern ausgehoben wurden, inspizieren. Roboterhunde sind aber nicht nur für Archäologen interessant.



ROBOTE



Roboter-Hund Spot soll in Pompeji einsturzgefährdete Tunnel erkunden, die von Grabräubern ausgehoben wurden.

Der Robodog bewegt sich selbst bei widrigsten Umständen sicher in unwegsamen Gelände, er kriecht durch enge Schächte, macht gestochen scharfe 360-Grad-Aufnahmen, kann Türen öffnen und vieles mehr. Der faszinierend-bizarre Roboterhund "Spot" der US-Firma Boston Dynamics sorgt seit Jahren für große Aufmerksamkeit.

Aktuelles Im Fokus Praxiswissen Branchen-Insights

Start Aktuelles Roboter in der Arbeitswelt: Sind sie unsere Kollegen und Chefs von morgen?



Aktuelles

Roboter in der Arbeitswelt: Sind sie unsere Kollegen und Chefs von morgen?

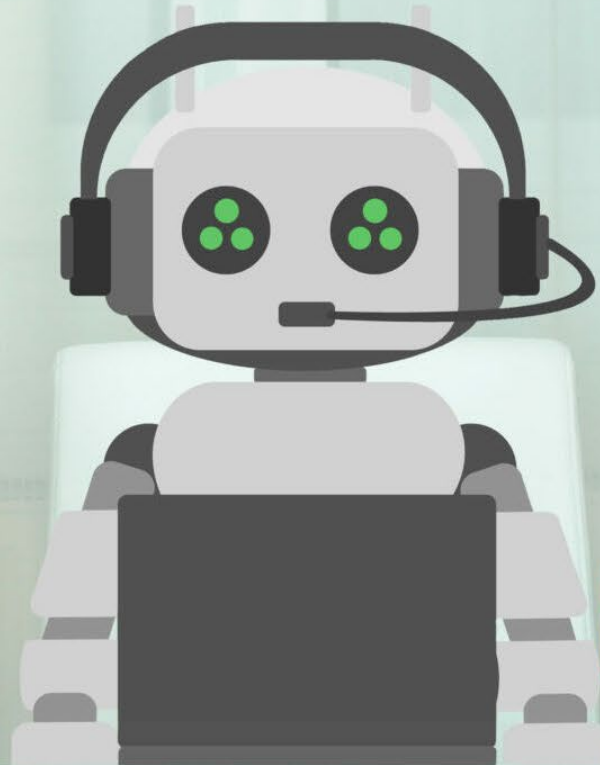
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Stellen Sie sich vor: Ein Roboter, der mit Menschen im Team arbeitet, ihnen vielleicht sogar Anweisungen gibt? Was heute noch schwer vorstellbar ist, könnte schon bald Realität sein. Studien und erste Pilotprojekte zeigen, dass Roboter als Chefs für mehr Produktivität und sogar eine höhere Mitarbeiterzufriedenheit sorgen können.

<https://www.wlw.de/de/inside-business/aktuelles/roboter-in-der-arbeitswelt>

Service Roboter als Mitarbeiter in der Arbeitswelt der Zukunft



Serviceroboter als Kollegen

TEAM



Stefanie Paluch



Sven Tuzovic



Heiko Holz



Alexander Kies



Moritz Jörling

Artikel

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“My colleague is a robot” – exploring frontline employees’ willingness to work with collaborative service robots

My colleague is
a robot

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Abstract

Purpose – As service robots increasingly interact with customers at the service encounter, they will inevitably become an integral part of employee's work environment. This research investigates frontline employee's perceptions of collaborative service robots (CSR) and introduces a new framework, willingness to collaborate (WTC), to better understand employee-robot interactions in the workplace.

Design/methodology/approach – Drawing on appraisal theory, this study employed an exploratory research approach to investigate frontline employees' cognitive appraisal of service robots and their WTC with their nonhuman counterparts in service contexts. Data collection consisted of 36 qualitative problem-centered interviews. Following an iterative thematic analysis, the authors introduce a research framework of frontline employees' WTC with service robots.

Findings – First, this study demonstrates that the interaction between frontline employees and service robots is a multistage appraisal process based on adoption-related perceptions. Second, it identifies important attributes across three categories (employee, robot and job attributes) that provide a foundation to understand the appraisal of CSRs. Third, it presents four employee personas (supporter, embracer, resister and saboteur) that provide a differentiated perspective of how service employee-robot collaboration may differ.

Practical implications – The article identifies important factors that enable and restrict frontline service employees' (FSEs) WTC with robots.

Originality/value – This is the first paper that investigates the appraisal of CSRs from the perspective of frontline employees. The research contributes to the limited research on human-robot collaboration and expands existing technology acceptance models that fall short to explain post-adoptive coping behavior of service employees in response to service robots in the workplace.

Keywords Robotization, Collaborative service robots, Human-robot interaction, Willingness to collaborate, Frontline service employees

Paper type Research paper

Introduction

The robots are coming. Industry reports estimate that the market size for service robotics is likely to grow from \$37 billion in 2020 to over \$102 billion by 2025 with a Compound Annual Growth Rate (CAGR) of 22.6% (Markets and Markets, 2020). While robots have been utilized for years behind the scenes across assembly lines, warehouses and order fulfillment centers



Kollaborativer Service Roboter

- Welche Faktoren beeinflussen die Bereitschaft von Servicemitarbeiter:innen, mit kollaborativen Service Robotern zusammenzuarbeiten?
- Wie sollte ein Roboter gestaltet sein hinsichtlich Aussehen, Fähigkeiten, Selbstständigkeit, Intelligenz?
- Für welche Aufgaben und Einsatzbereiche im Servicebereiche eignet sich ein kollaborativer Mensch-Roboter Ansatz?
- Welche Mitarbeitereigenschaften spielen eine Rolle in der Roboterakzeptanz am Arbeitsplatz?



Kollaborative Serviceroboter

Definition

Maschinen in einem **physischen Körper**, die mit einem gewissen Maß an **künstlicher Intelligenz** (KI) und **funktionaler Autonomie** ausgestattet und konzipiert sind, um gemeinsam mit den Service-mitarbeiter:innen zu arbeiten und ähnliche **Aufgaben** zu übernehmen.

Abgrenzung zu virtuellen Robotern:

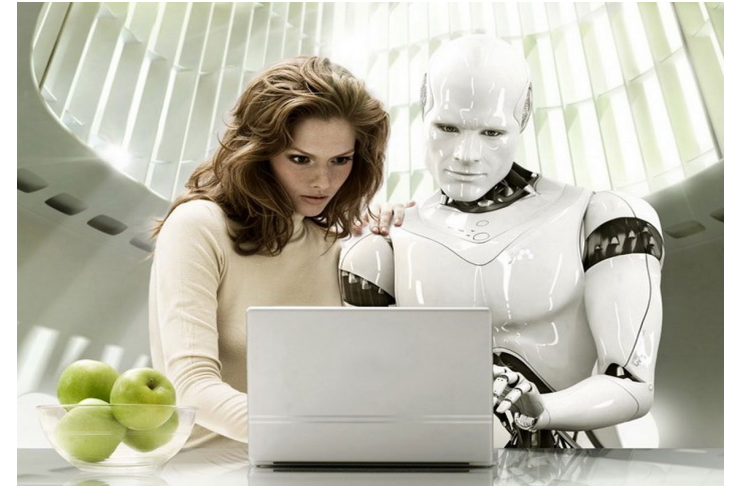
- haben eine physische Hülle, eine Art Körper und können physische Aufgaben erledigen

Abgrenzung zu normalen physischen Robotern:

Sprache und Interaktionsmöglichkeiten-
hohe Autonomie

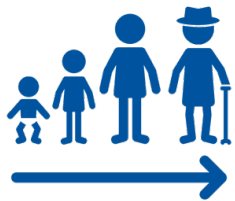
- humanoid (im Vergleich z.B. zu Roboterarmen in der Produktion)

Anwendungsbereiche z.B.: Hotelrezeption oder Zimmerservice, Gastronomie in der Gästebetreuung, Patientenversorgung im Krankenhaus



Qualitative Studie

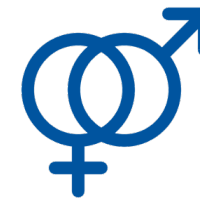
- Halbstrukturierte Interviews wurden mit 36 TeilnehmerInnen wurden über Zoom geführt.
- Purposive sampling strategy zur Expertenrekrutierung (Patton, 2015)
- Die Interviewpartner mussten zwei Kriterien erfüllen:
 1. die Befragten sollten über Erfahrung mit Servicerobotern haben
 2. sie sollten in der Dienstleistungsbranche tätig sein.



*Teilnehmer:innen
zwischen 24-61
Jahre*



*Die Interviews
dauerten zwischen
40 und 90
Minuten.*

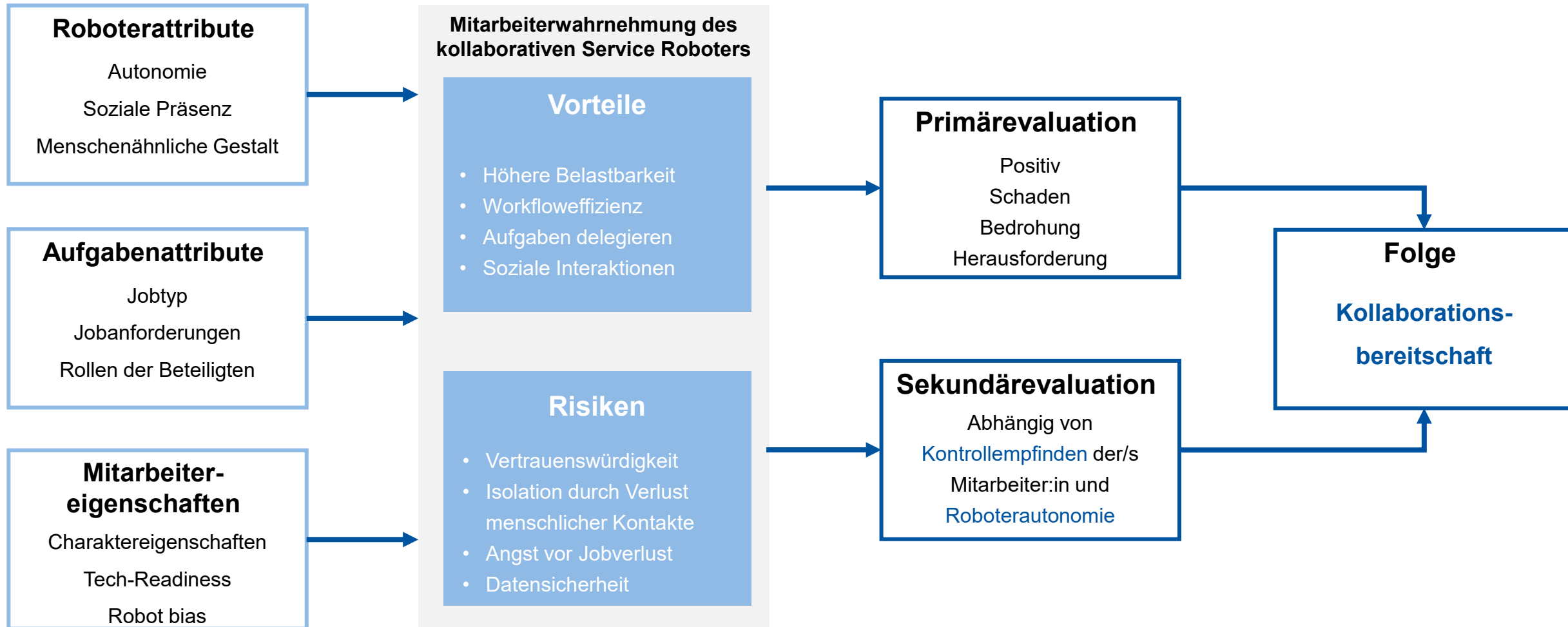


*15 Interviews mit
weiblichen
TeilnehmerInnen*



Mensch-Roboter Kollaboration

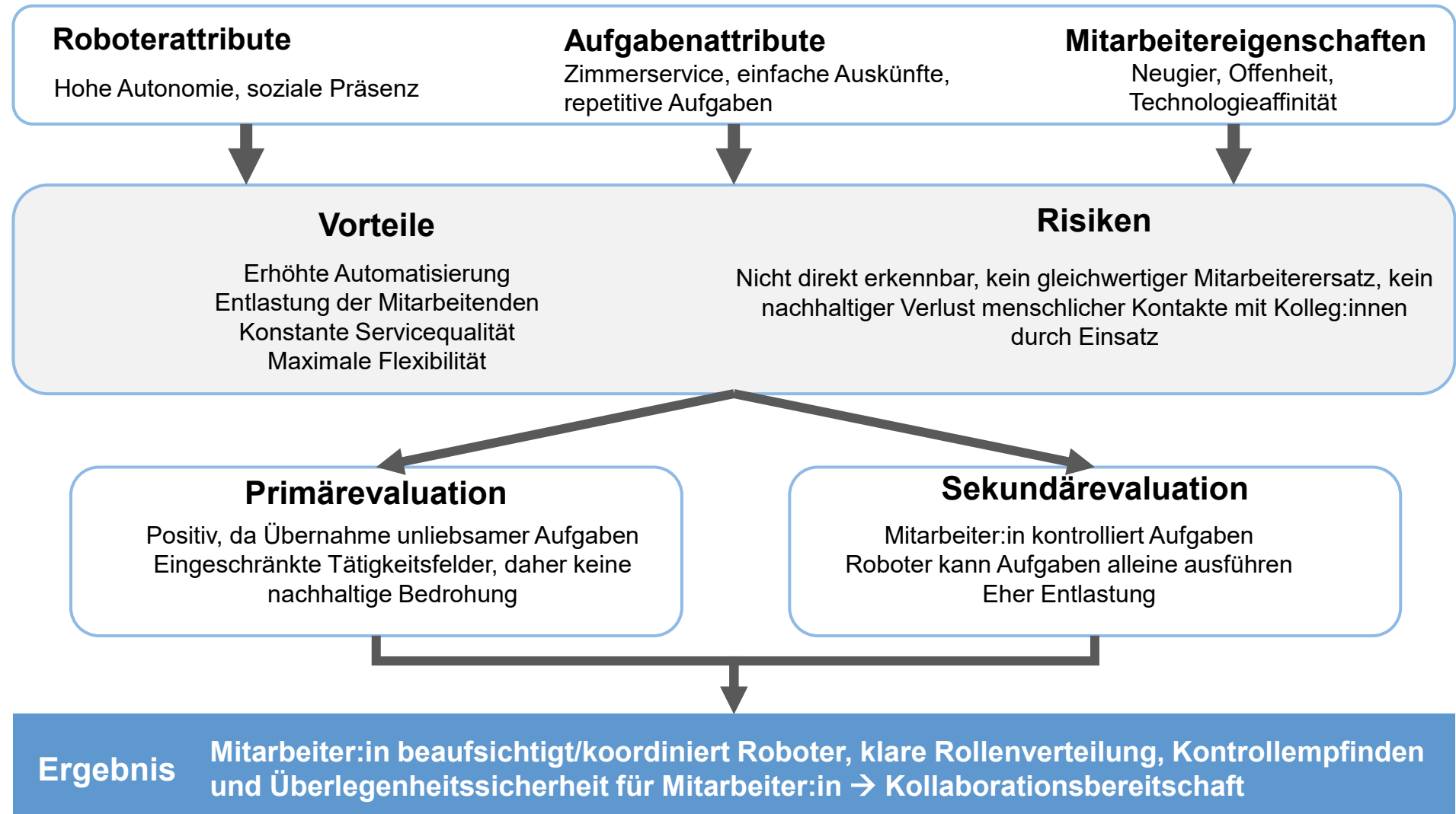
Cognitive-appraisal Theory



Anwendungsbeispiel der Mensch-Roboter Kollaboration



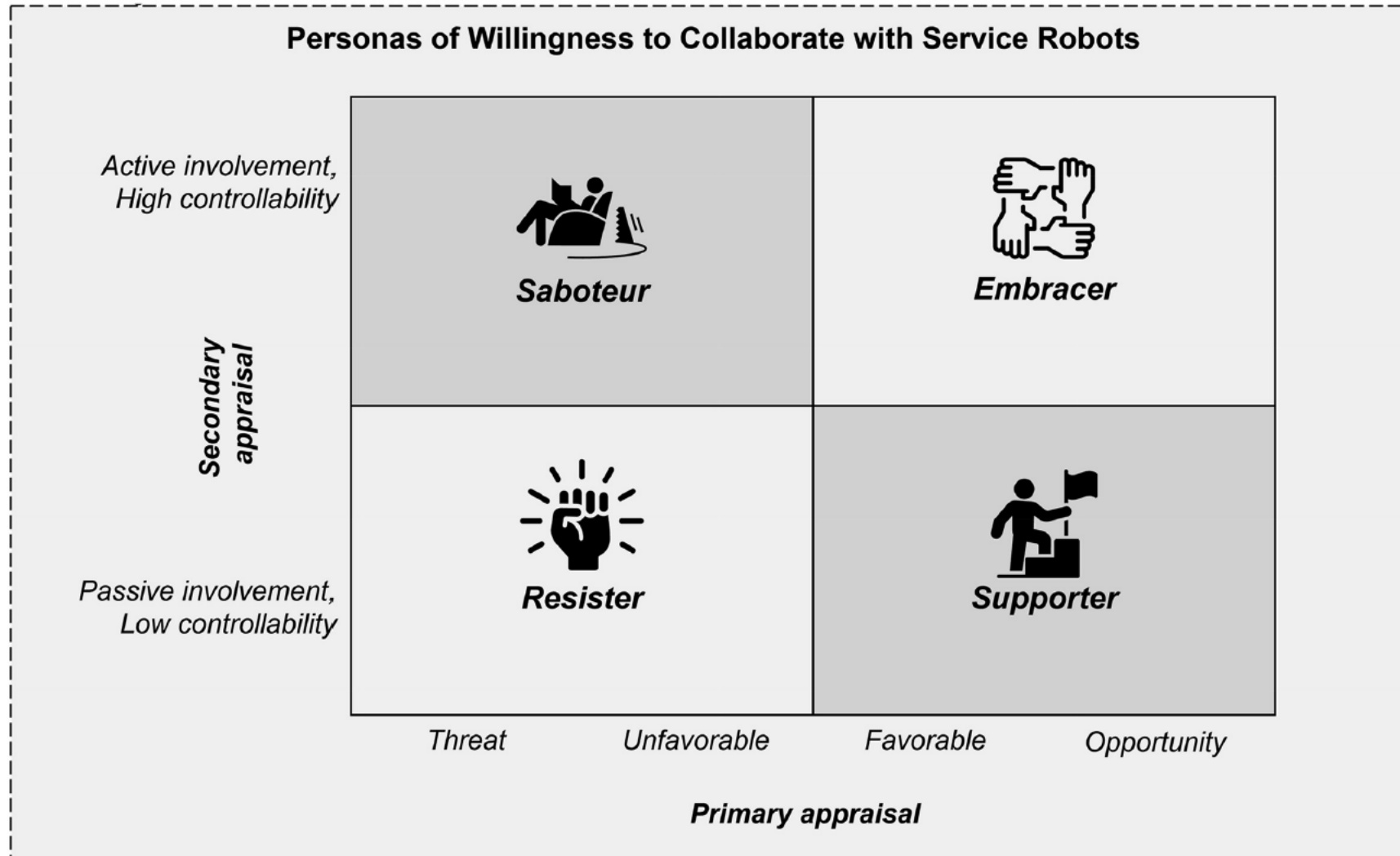
Jeeves:
übernimmt autonom
Zimmerservice, unterstützt
Rezeptionspersonal, bucht
Bestellungen und
Bezahlungen, speichert
Buchungswünsche usw.



Abgeleitete Personas zur Roboterkooperation

Saboteure haben keine Erfahrung, wollen aber SR aktiv verhindern

Resister haben Erfahrung, beschwerten sich aber aktiv



Embracer wollen Mehrwerte schaffen und Produktivität steigern

Supporter wollen ihre Arbeitsbelastung reduzieren

Key Take-Aways für Manager



- Die Kollaborationsbereitschaft der Mitarbeiter:innen ist eine entscheidende Voraussetzung dafür, dass die Unternehmen die Vorteile dieser neuen Technologie nutzen können.
- Entscheider:innen sollten besonders beachten, dass die Auswahl der Roboterattribute mit den Aufgaben- und Mitarbeiterereigenschaften der Aufgabe übereinstimmen.
- Mehr Unterstützung für Roboterintegration, wenn klare Regeln und Rollenverteilung für Kooperationsprozess vorhanden
- Integration von "einfacheren" Serviceroboter für die Zusammenarbeit: So können Mitarbeiter:innen die Vorteile erleben, ohne sie als Risikofaktor zu sehen, sei es aus psychologischen oder finanziellen Gründen.

*Roboter für spezielle
Service Situationen*



Peinliche Service- Begegnungen mit Robotern

TEAM



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Werner Kunz

Artikel

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Service robots, agency and embarrassing service encounters

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Robots in
embarrassing
service
encounters

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Abstract

Purpose – Extant research mainly focused on potentially negative customer responses to service robots. In contrast, this study is one of the first to explore a service context where service robots are likely to be the preferred service delivery mechanism over human frontline employees. Specifically, the authors examine how customers respond to service robots in the context of embarrassing service encounters.

Design/methodology/approach – This study employs a mixed-method approach, whereby an in-depth qualitative study (study 1) is followed by two lab experiments (studies 2 and 3).

Findings – Results show that interactions with service robots attenuated customers' anticipated embarrassment. Study 1 identifies a number of factors that can reduce embarrassment. These include the perception that service robots have reduced agency (e.g. are not able to make moral or social judgements) and emotions (e.g. are not able to have feelings). Study 2 tests the base model and shows that people feel less embarrassed during a potentially embarrassing encounter when interacting with service robots compared to frontline employees. Finally, Study 3 confirms that perceived agency, but not emotion, fully mediates frontline counterparty (employee vs robot) effects on anticipated embarrassment.

Practical implications – Service robots can add value by reducing potential customer embarrassment because they are perceived to have less agency than service employees. This makes service robots the preferred service delivery mechanism for at least some customers in potentially embarrassing service encounters (e.g. in certain medical contexts).

Originality/value – This study is one of the first to examine a context where service robots are the preferred service delivery mechanism over human employees.

Keywords Service robots, Artificial intelligence, Agency, Embarrassment, Service encounter

Paper type Research paper

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A photograph of Adele on stage, looking upwards with a pensive or emotional expression. She has blonde hair styled in a messy bun and is wearing a dark, possibly black, dress. A bright, circular spotlight illuminates the background behind her, creating a strong contrast with the dark stage.

*„I went to H&M and my card got declined. Oh my days, pretty embarrassing. Nobody knew it was me, but I was mortified.”
(Adele, Oscar and 10-time Grammy-winning Singer)*



*Hämorrhoiden Creme
Roboter oder Mensch?*



*Was macht
Dienstleistungen
peinlich?*

*Können Service Roboter
peinliche Situationen
abfedern?*

*Und falls ja, **warum?***

Forschung zu peinlichen Dienstleistungssituationen

Verlegenheit kann durch peinliche soziale Situationen, Inkompetenz der Verbraucher und sensible Produkte und Dienstleistungen wie Kondome, Medikamente zur Verhütung, von Blähungen, oder Erektionsstörungen ausgelöst werden, die als von Natur aus peinlicher angesehen werden als andere.



(Dahl, Manchanda and Argo, 2001; Iacobucci et al., 2002; Blair and Roese, 2013; Krishna, Herd and Aydinoglu, 2015).

Ursache	Quellen der Verlegenheit	Folgen der Verlegenheit
 Wahrgenommene soziale Präsenz	 Kritik oder Verletzung der Privatsphäre durch den Dienstleister	 Boykott von bestimmten Dienstleistungen / Kaufverzicht
	 Fehlerhafte Handlungen des Kunden	 Reduzierte Kundschaft / Wechselverhalten
	 Unangemessenes Verhalten von anderen Anwesenden	 Negatives word-of-mouth

Mögliche Abhilfemaßnahmen: Klare Service-Skripte, Schulung von Dienstleistern, schnellerer Service, Einsatz von Technologie im Laden und außerhalb des Ladens können verhindern, dass sich die Verbraucher in Verlegenheit gebracht fühlen.

General Triggers of Embarrassment

Service itself

Service Provider

- Behavior of service employee
- Characteristics of the employees
- Dependency on the service provider
- Knowledge gap

Service Customer

- Duration of interaction
- Unfamiliarity and inexperience with service

Other Customers

- Number of other people around
- Actions by other customers
- Social norms
- Stereotypes

Potential Effects of Service Robots on Feelings of Embarrassment

Individual Factors



Age



Gender



Public self-consciousness



Technology readiness

Type of Service Robot



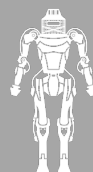
Chatbot
(text-based)



Voice Assistants
(voice-based)



Service Robots
(physical)



Service Robots
(humanoid)

Agency Dimension

- Robots have no mind/personality
- No moral instance
- Do not know what is right or wrong
- No (social) judgement
- Problem-oriented

Social Emotional Dimension

- Less communication and interaction
- Anonymity and discretion
- Neutral behavior
- No feelings /emotions
- No empathy
- No warmth and comfort

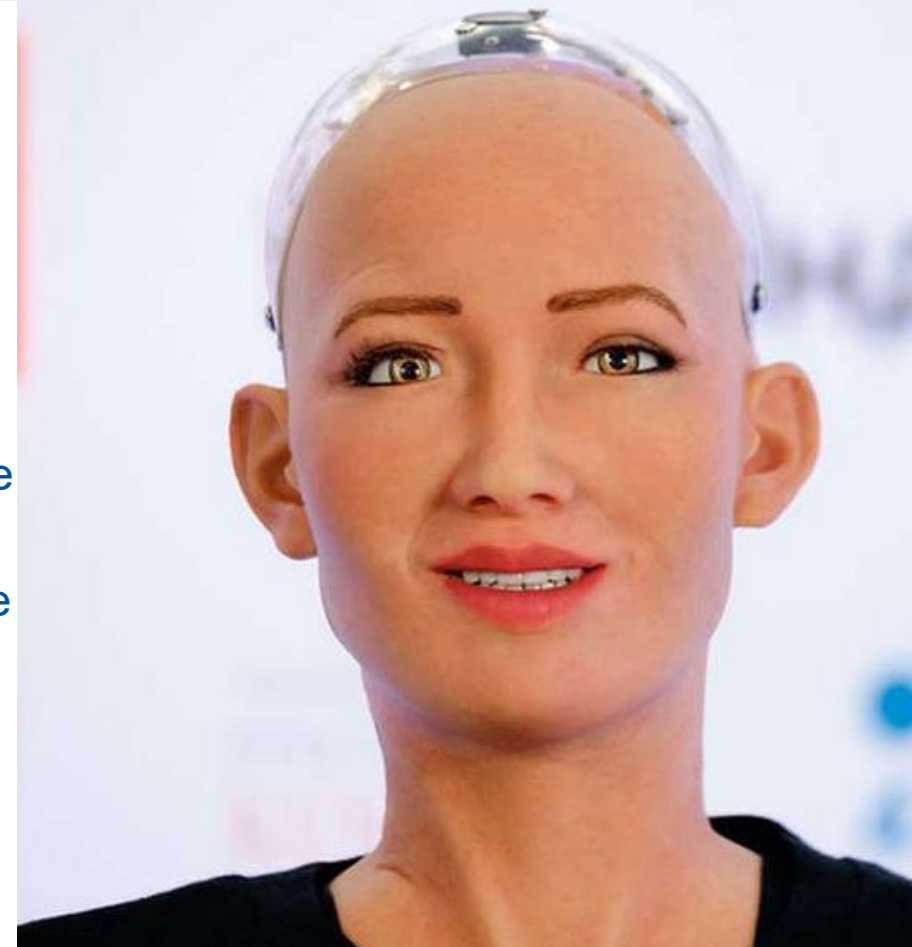
Privacy Dimension

- Access to sensitive data
- Tracking back personal data
- Always online and risk of eavesdropping
- General security concerns

Werden Roboter über mich urteilen?

Mind-perception and role of agency:

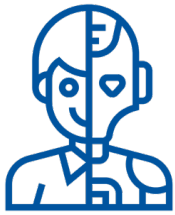
- Zuschreibung des Geistes (Mind) an nicht-menschliche Akteure (Waytz, Cacioppo and Epley, 2010; Gray and Wegner, 2012; Waytz and Young, 2014)
- Der Mensch nimmt den Geist in zwei verschiedenen Dimensionen wahr: Handlungsfähigkeit (Agency) und Erfahrung (Gray, Gray, and Wegner, 2007; Fiske, Cuddy, and Glick, 2007).
- Nicht (nur) wie sehr sie wie Menschen aussehen, sondern wie sehr sie als Menschen handeln (Autonomie) (van der Woerdt and Haselager, 2019).
- Handlungsfähigkeit bezeichnet die autonome oder zumindest teilweise unabhängige Fähigkeit, zielgerichtet zu handeln. (Gray, Gray, and Wegner, 2007)
- Erfahrung ist die Fähigkeit, zu fühlen und zu spüren (Gray, Gray, and Wegner, 2007)
- Roboter, die Handlungsfähigkeit zeigen, lösen auch ohne menschenähnliches Aussehen Gefühle des Unbehagens und des Unwohlseins aus (Gray et al., 2012)



Sophia ein humanoider Roboter hat die Saudi Arabische Staatsbürgerschaft und ist Innovation Champion der UN

Quantitative Verifizierung

Aufbauend auf den Ergebnissen der qualitativen Studie werden Experimente durchgeführt



Literatur:

Menschen schreiben einem Service-roboter keine Absicht, keine Kognition und keine Emotionen zu und sind daher nicht in der Lage, den Kauf oder das Verhalten eines Menschen sozial zu bewerten. (van der Woerd and Haselager, 2019; Wirtz et al. 2019)



Literatur:

Da sie von Menschen entwickelt wurden, um zu dienen, werden Serviceroboter in der Regel so wahrgenommen, als hätten sie keine autonomen Absichten oder Ziele. (Russell and Norvig, 2010; Ward, et al., 2013, Gray and Wegner, 2012)

Hypothese 1

Bei einer peinlichen Service-Begegnung verringert die Interaktion mit einem Service-Roboter (im Vergleich zu einem menschlichen Mitarbeiter) die erwartete Peinlichkeit der Verbraucher.



Study 2

Hypothese 2

Die abmildernde Wirkung von Servicerobotern (im Vergleich zu menschlichen Mitarbeitern) auf Peinlichkeiten wird durch die Wahrnehmung von Handlungsfähigkeit (H2a) und Erfahrung (H2b) vermittelt.



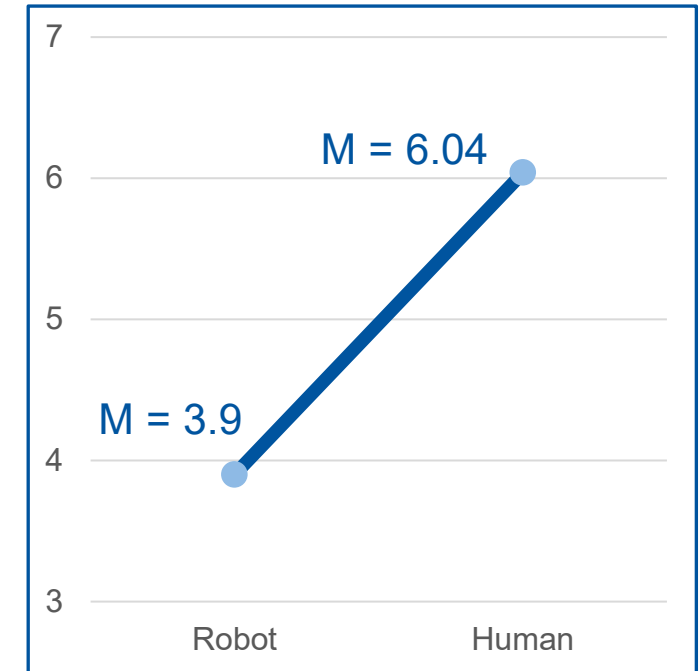
Study 3

Szenario und Ergebnis Studie 2

Stellen Sie sich vor, Sie befinden sich an der Rezeption des medizinischen Zentrums Proforma Clinic. Leider leiden Sie seit kurzem an Hämorrhoiden (Gastritis) und wollen, auch wenn es Ihnen peinlich ist, Ihren Arzt aufsuchen. Bevor Sie die Arztpraxis betreten, müssen Sie sich am Informationsschalter anmelden und erste Angaben zu Ihrer Erkrankung machen. Wenn Sie an der Rezeption ankommen, werden Sie von der Sprechstundenhilfe gebeten, Ihre Schmerzen und Beschwerden im Anus (Bauch) zu beschreiben und anzugeben, wie oft Sie rektale Blutungen (Brennen) haben.



Anticipated embarrassment
(high embarrassment)



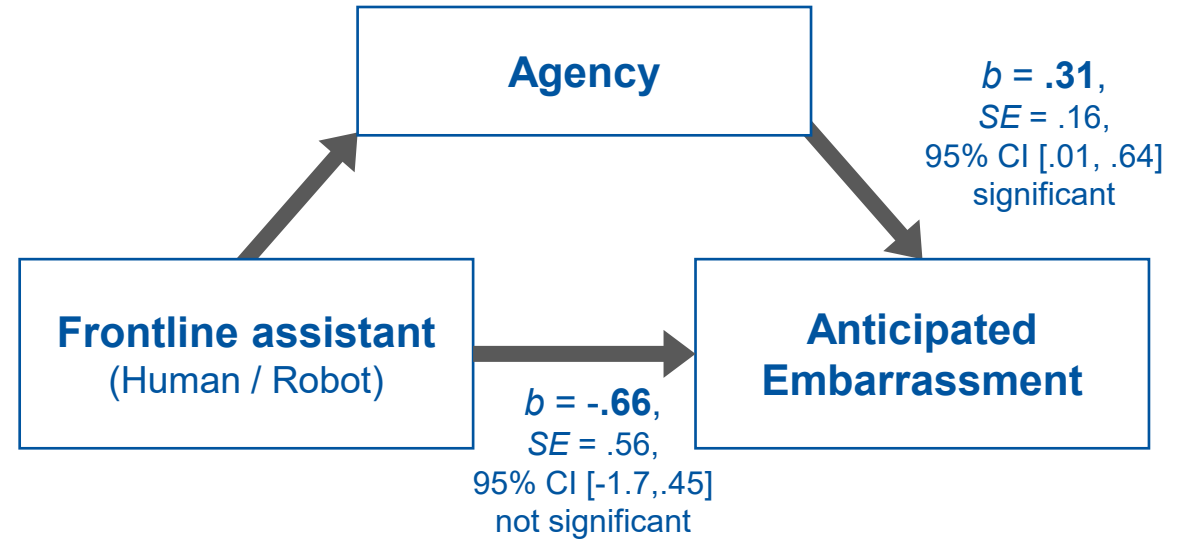
Significant interaction effect:
 $F[1,162] = 42.33; p = .002$



Die Befragten fühlen sich weniger peinlich berührt, wenn sie mit einem Roboter sprechen als mit einem menschlichen Mitarbeiter

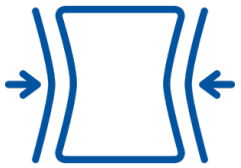
Szenario und Ergebnis Studie 3

"Stellen Sie sich vor, Sie leiden seit kurzem an einer schlimmen Pilzinfektion der Haut, die zu Rötungen, Hautveränderungen und Juckreiz am ganzen Körper und im Gesicht führt. Nach einem Arztbesuch müssen Sie zur nächstgelegenen Apotheke gehen, um das verschriebene Antimykotikum abzuholen. Wenn Sie an der Rezeption ankommen, müssen Sie nach Ihrem Antimykotikum fragen und Sie finden den Apotheker auf dem Bild unten:



Insgesamt zeigen diese Ergebnisse, dass der Frontline-Service-Assistent seine indirekte Wirkung auf die vom Kunden erwartete Peinlichkeit nur über die wahrgenommene Handlungsfähigkeit, nicht aber über die Erfahrung ausübt, was H2a, nicht aber H2b unterstützt. Im Gegensatz zu früheren Studien: Aufbau stärkerer Verbindungen mit mehr Menschlichkeit (van Pinxteren et al., 2019). Geringes Maß an Verstand und Handlungsfähigkeit könnte bei einigen Dienstleistungsbegegnungen vorteilhaft sein.

Roboterintegration im Alltag – Bedeutung für die Zukunft



Die Studien zeigen die vielfältigen internen (Roboter als Kollegen) und externen (peinliche Dienstleistungen) Anwendungsbereiche, für die Servicefirmen zukünftig den Einsatz kollaborativer Service Roboter anvisieren. Die Studien liefern kontextbezogen erste Faktoren zur Berücksichtigung bei der Roboterintegration im Service.

Manager:innen in Servicefirmen benötigen mehr Anhaltspunkte und Wissen darüber, welche Faktoren die menschliche Akzeptanz in verschiedenen gestalteten Service-Situationen beeinflussen und wie Roboterintegration einen Mehrwert im Sinne eines besseren Kunden- oder Arbeitserlebnisses schaffen kann.



Es gilt, für eine Vielzahl von Servicesituationen und Anwendungsszenarien zu entscheiden, wie der roboter-gestützte Servicekontext konfiguriert sein soll (humanoider Service Roboter, nur text- oder sprachbasiert, voll automatisiert oder mit menschlichen Co-Workern?)

Servicefirmen vor der Herausforderung der Implementierung für interne und externe Aufgaben

Anpassung für Konsument:innen und Nutzer:innen im Servicekontext

Bisherige Limitationen und weiterer Forschungsbedarf

Szenario-basierte Experimente

Welche Dienstleistungsbranchen- & Arten sind prädestiniert?

Welche Kontextfaktoren beeinflussen situationsabhängiges Potenzial?



GET IN TOUCH



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