

Universität St. Gallen - Institut für Marketing und Customer Insight (Ed.)

Periodical Part

Marketing Review St.Gallen, Ausgabe 6/2022: Open Innovation & Crowdsourcing in Marketing

Marketing Review St.Gallen

Provided in Cooperation with:

Universität St. Gallen, Institut für Marketing und Customer Insight

Suggested Citation: Universität St. Gallen - Institut für Marketing und Customer Insight (Ed.) (2022) : Marketing Review St.Gallen, Ausgabe 6/2022: Open Innovation & Crowdsourcing in Marketing, Marketing Review St.Gallen, ISSN 1865-7516, Thexis Verlag, St.Gallen, Vol. 39, Iss. 6

This Version is available at:

<https://hdl.handle.net/10419/279707>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

Marketing Review

St.Gallen

Open Innovation & Crowdsourcing



Schwerpunkt

Mensch oder Maschine –
Wer behält die Vorherrschaft
bei der Kreativität?

«Golden Crowd» –
Engaging the Users That Deliver
on Your Crowdsourcing Goals

Beware of Sore Losers!
Crowdsourcing Might Have Backfiring
Effects Among Participants

AI-Assisted Searching Through
Crowdsourced Solution Space

Human-Machine Creativity –
How AI Can Influence Human
Creativity in Open Innovation

Spektrum

B-to-B-Marketing ist
Hochleistungsmarketing

Rethinking Value Creation
in Brick-and-Mortar Retailing

Believe the Hype?
Herausforderungen und
Herangehensweisen
an das «Metaverse»



Universität St.Gallen

Institut für Marketing und Customer Insight



Neue Impulse für Ihre tägliche Arbeit

Wir bieten von fokussierten Intensivseminaren bis hin zu Zertifikats- und Diplomstudiengängen zahlreiche Weiterbildungsmöglichkeiten zu allen relevanten Themen in Marketing, Sales und Einkauf an. Individuell, berufsbegleitend und flexibel.

Diplomprogramm Sales Executive (DAS) Nächster Starttermin: 10. Januar 2023 (12x3 Tage)

Intensivstudium Marketing Management (CAS) Nächster Starttermin: 10. Januar 2023 (6x3 Tage)

Intensivseminar Value-based Kundenmanagement Nächster Starttermin: 22. November 2022



Jetzt informieren:
imc.unisg.ch/weiterbildung

From insight to impact.

Innovationsschub durch digitale Plattformen und Künstliche Intelligenz?

Marketing bedeutet, ein Unternehmen konsequent nach den Bedürfnissen des Marktes und den Konsumentinnen und Konsumenten auszurichten. Damit dies nachhaltig gelingt, ist Innovation unerlässlich. Denn Innovation ermöglicht einem Unternehmen, sich an sich stetig verändernde Bedürfnisse anzupassen oder gar neue Bedürfnisse zu schaffen, was eine Abgrenzung zur Konkurrenz ermöglicht und hilft, Preispotenziale zu erschliessen.

Die Zeit, in der Innovation ausschliesslich in abgeschotteten Teams, in unternehmensinternen Forschungs- und Entwicklungsabteilungen mittels teils kurios anmutenden Kreativitätsansätzen geschah, ist jedoch längst vorbei. Vielmehr haben sich skalierbare, plattformgestützte, kollaborative und offene Ansätze durchgesetzt, bei denen Mitarbeitende sowie Konsumentinnen und Konsumenten über digitale Kanäle und Plattformen in den Innovationsprozess eingebunden werden. Crowdsourcing ist ein wesentliches solches Instrument, welches für unterschiedlichste Marketingtätigkeiten genutzt wird. Open Innovation ermöglicht so, nicht nur kundennähere Angebote zu geringeren Kosten zu entwickeln, sondern macht es der Kundschaft möglich, Teil des Innovationsprozesses zu werden. Die dabei entstandenen Produkte und Dienstleistungen kommen im Markt oft besser an und erzielen höhere Umsätze.

Der erste Artikel dieser Ausgabe von Füller, Bilgram und Hahn thematisiert deshalb die Frage, welche Konsumentinnen

und Konsumenten sich überhaupt auf solchen Plattformen beteiligen und wie wir diese erkennen. Im Artikel von Karpukhina, Schreier, Janiszewski und Nishikawa geht es um mögliche negative Konsequenzen beim Einsatz von Crowdsourcing, nämlich die Enttäuschung bei Konsumentinnen und Konsumenten, deren Ideen ausgesiebt werden.

Aber nicht nur die Kreativität der Konsumentinnen und Konsumenten, sondern auch jene der Maschinen kann angezapft werden. Immer mehr Unternehmen entdecken Ansätze, um mit Künstlicher Intelligenz (KI) Kreativität und Innovation zu fördern. Signifikante Verbesserungen in der KI-Technologie haben dazu geführt, dass die KI nun häufig die menschliche Kreativität übertrifft. Dadurch ergeben sich für Unternehmen neue Chancen, aber auch Herausforderungen, welche in dieser Ausgabe der Marketing Review St. Gallen aus unterschiedlichen Perspektiven im Rahmen von Forschungsprojekten untersucht und in einem Interview mit dem CIO des KI-Start-up neuroflash, Dr. Jonathan Mall, diskutiert werden.

Ferner liefert der Artikel von Hofstetter, Clegg, Blohm und Bravin einen Überblick, wie die Kreativität der Menschen auf Crowdsourcing-Plattformen mithilfe von KI unterstützt werden kann. Darüber hinaus wird im Artikel von Wahl, Füller und Hutter gezeigt, wie KI-basierte Sprachmodelle Manager bei der Evaluation und Selektion von Ideen unterstützen können.



Illustration: © Studio Nippoldt

**Prof. Dr.
Reto Hofstetter**

Ordentlicher Professor für
digitales Marketing an der
Universität Luzern
reto.hofstetter@unilu.ch

6/2022

Schwerpunkt

Interview

06 Mensch oder Maschine

Wer behält die Vorherrschaft bei der Kreativität?

Dr. Jonathan Mall, CIO des KI-Start-up neuroflash, spricht darüber, wie Künstliche Intelligenz optimal in den Innovationsprozess eingebunden werden kann und welche Möglichkeiten sich daraus ergeben.

Das Interview führt Felix Schakols

Crowdsourcing Participants

12 «Golden Crowd»

Engaging the Users that Deliver on Your Crowdsourcing Goals

Five distinct crowdsourcing contest user types based on their motivation, abilities and opportunities are introduced.

Volker Bilgram, Alexander Hahn, Johann Füller

22 Beware of Sore Losers!

Crowdsourcing Might Have Backfiring Effects Among Participants

Crowdsourcing participants whose ideas were not selected might disengage from the brand hosting the contest. This article provides ideas on how companies can avoid this.

Tatiana Karpukhina, Martin Schreier, Chris Janiszewski, Hidehiko Nishikawa

Service

29 Call for Papers

39, 73 Rezensionen

74 Literatur zum Thema:
Open Innovation & Crowdsourcing

75 Vorschau & Impressum



Inhaltliche Koordination dieser Ausgabe
Lucas Nann, M.A.
Doktorand und Wissenschaftlicher Assistent
am Institute of Marketing and Analytics
an der Universität Luzern, Schweiz

Illustration: © Studio Nippoldt



AI in Open Innovation & Crowdsourcing

- 30 **AI-Assisted Searching through Crowdsourced Solution Space**
- Using data from an innovation contest by BMW, the authors show how AI-based language models can support managers in the process of structuring and exploring crowdsourcing solutions.
- [Julian Wahl, Johann Füller, Katja Hutter](#)
- 40 **Human-Machine Creativity**
How AI Can Influence Human Creativity in Open Innovation
- The authors identify barriers to individual creative performance of innovation platform users and discuss how AI tools can help overcome these barriers.
- [Melanie Clegg, Reto Hofstetter, Ivo Blohm, Marc Bravin](#)

Spektrum Marketingmanagement

- 48 **B-to-B-Marketing ist Hochleistungsmarketing**
- Im Gespräch gehen Anton Holenstein, Chief Strategy Officer bei Bühler, und Burkhard Böndel, Head Corporate Communications bei Bühler, darauf ein, was es für sie bedeutet, B-to-B-Marketing neu zu denken.
- [Das Interview führen Sven Reinecke und Meriton Ceka](#)
- 56 **Rethinking Value Creation in Brick-and-Mortar Retailing**
- The authors derive a *4-A Value Creation Framework* that showcases how augmented reality can facilitate value creation for customer journeys in brick-and-mortar retail.
- [David Finken, Thomas Scheurer](#)
- 66 **Believe the Hype?**
Herausforderungen und Herangehensweisen an das «Metaverse»
- Der Beitrag zeigt Ansatzpunkte auf, wie Marketing-Führungskräfte mit aktuellen Unsicherheiten rund um das Metaverse umgehen können. Die Autoren leiten vier Handlungsfelder ab.
- [Marcus Schögel, Laura-Eve Grellmann, Severin Lienhard, Dennis Herhausen](#)

Mensch oder Maschine

Wer behält die Vorherrschaft bei der Kreativität?

Die Themenfelder Crowdsourcing und Open Innovation illustrieren zweifellos den grossen Wert der kreativen Leistung des Menschen. In der Domäne des kreativen Schaffens hat der Mensch noch immer die Oberhand gegenüber der Künstlichen Intelligenz. Oder etwa doch nicht? Dr. Jonathan T. Mall, CIO und Co-Founder bei neuroflash, gibt in diesem Interview tiefe Einblicke in die Vor- und Nachteile menschlicher und Künstlicher Intelligenz. Unter anderem erklärt er die optimale Einbindung Künstlicher Intelligenz in den Innovationsprozess und beleuchtet, warum Künstliche Intelligenz vielmehr Chance statt Risiko ist. Ein Gespräch über menschliche Grenzen, maschinelle Denkprozesse und wie man eine Kurzgeschichte über eine Schnur, ein Taxi und eine Gurke schreibt.

Das Interview führt Felix Schakols, M.A.,
Doktorand und Wissenschaftlicher Assistent
am Institute of Marketing and Analytics
an der Universität Luzern

Jonathan, könntest du uns zu Beginn erklären, worum es bei neuroflash genau geht?

neuroflash hilft Copywritern dabei, schnelleren und besseren Content zu erstellen. Das Unternehmen ist von mir gegründet worden und ich komme ursprünglich aus der Psychologie, wo ich mich mit vielen neurowissenschaftlichen Themen wie z.B. unserem Arbeitsgedächtnis beschäftigt habe. neuroflash ist eine Kombination aus Psychologie, Neurowissenschaften und Data-Science.

Wenn man bei euch auf die Website geht, sieht man, dass euer KI-Textgenerator über 80 verschiedene Texttypen behandeln kann. Das geht von Marketingkampagnenideen über Vortragstitel bis hin zu Geschichten, erzählt aus der Ich-Perspektive. Welche Texttypen stossen denn in der Praxis auf die grösste Resonanz?

Das hängt von der Gruppe der Nutzerinnen und Nutzer ab. Viele Leute nutzen neuroflash auch für einfache Aufgaben, wie z.B. einen Text in Sie-Form auf «du» umzuschreiben oder generell einen Text umzuschreiben, also neue Wörter zu finden für das Gleiche, möglicherweise zusammenfassend. Allerdings werden aktuell auch viel längere Texte generiert, d.h. ganze Blog-Artikel in wenigen Klicks. Andere längere Texte sind z.B. auch Produktbeschreibungen oder Beiträge für soziale Medien.

Welcher Texttyp ist denn dein ganz persönlicher Favorit?

Die Ich-Geschichte ist ziemlich cool. Du kannst dem Tool wirklich sagen: «Erzähle mir eine Geschichte über eine Schnur, ein Taxi und eine Gurke» und dann kommt da eine Geschichte raus. Jeder Mensch, der das hört, denkt schnell: «Das hängt nicht miteinander zusammen, wie mache ich daraus eine Geschichte?» Die KI macht innerhalb von acht Sekunden eine komplette Geschichte aus der Ich-Perspektive daraus. Die ist meistens noch nicht perfekt. Vielleicht vergisst sie, wofür die Schnur war. Dann fügst du das hinzu und bist fertig. Deine kreative Leistung wird auf jeden Fall dadurch erleichtert.

Dr. Jonathan T. Mall
CIO und Co-Founder
neuroflash GmbH
neuroflash.com

Wie kann man sich die Funktionsweise eures Textgenerators vorstellen?

Wir haben quasi zwei KIs, die in unterschiedlichen Räumen sitzen und unseren Kundinnen und Kunden helfen. Die eine generiert Texte, da benutzen wir Transformer-Modelle, welche von uns fein-getuned sind. Dieser KI kannst du z.B. sagen: «Ich habe eine Idee, ich hätte gerne einen Text, der über Weintrauben geht» und dann schreibt sie den entsprechenden Text.

Dann haben wir eine zweite KI, die darauf trainiert ist, das, was die andere KI generiert hat, zu bewerten. So kannst du simulieren, was passiert, wenn jemand einen bestimmten Text liest. Diese zweite KI wertet das aus und sagt dann z.B. «Dieser Text über

«neuroflash ist eine Kombination aus Psychologie, Neurowissenschaften und Data Science.»

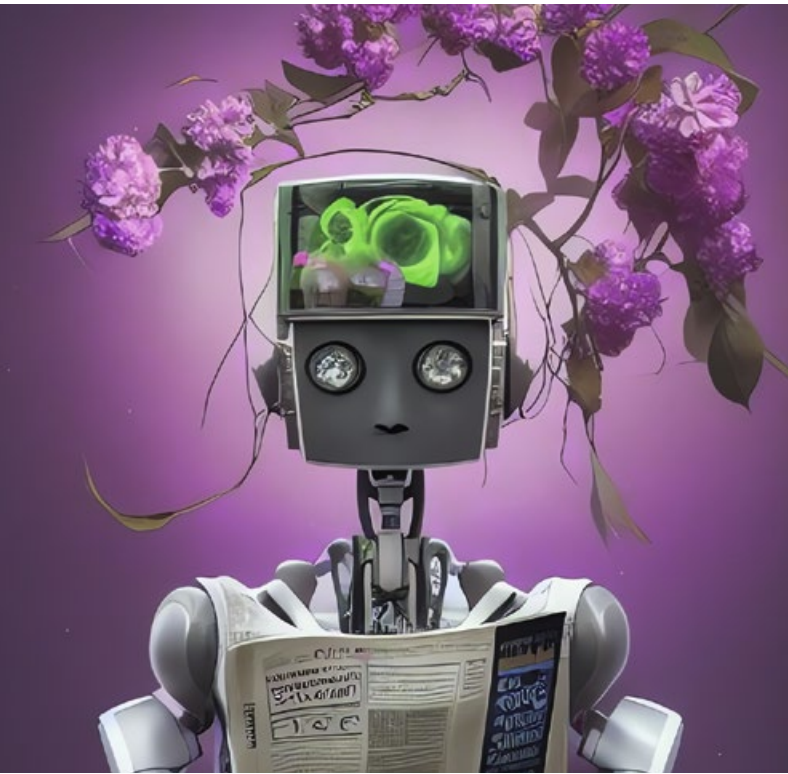
Trauben ist sehr nachhaltig», weil du etwa über die Natürlichkeit des Bodens und die Sonne und wenig Pestizide redest. Beide KIs funktionieren technisch unabhängig, aber am Ende ist es die Synthese aus beiden KIs, die dem Kunden hilft, schneller etwas zu schreiben, was dann aber auch entsprechend gut ankommt.

Hier kommt dann dementsprechend wieder die psychologische Komponente der menschlichen Wahrnehmung dazu?

Das kann man so sagen, obwohl natürlich in beiden Seiten die Trainingsgrundlage von Menschen geschriebene und gelesene Texte sind. Bei beiden KIs – also bei der ersten KI sind es Transformer-Modelle oder bei der Zweiten mehr Word-Embedding-Modelle – sind also Muster enthalten, die menschlichen Denkmustern nahekommen.

Welche Methoden stecken denn hinter dem Textgenerator und sind diese auch wissenschaftlich fundiert?

Bei beiden KIs gibt es Validierungen auf Basis menschlicher Einschätzung. Du kannst z.B. das Transformer-Modell auf Intelligenz testen, indem du es fragst, was die Hauptstadt von Frankreich ist.



Auf der Dimension ist die KI sogar ein Tickchen intelligenter als Menschen, weil es eine Unmenge an Wissen im Modell hat. Ein Transformer-Modell hat z.B. ganz Wikipedia gelesen. Ein Word-Embedding-Modell kann man ebenfalls ähnlich testen. Dort sind die Bewertungskriterien häufig so etwas, wie gut du z.B. eine Emotion vorhersagen kannst. Wie nah kommst du zum Durchschnitt von dem, was drei Leute sagen würden, wie sie ein bestimmtes Wort empfinden? Auch da wurden entsprechende Untersuchungen natürlich gemacht. Man liegt zwischen 93% und 98% innerhalb einer Standardabweichung der durchschnittlich von Menschen gegebenen Bewertung zu der Emotion eines Wortes.

Trotz des wachsenden Einfühlungsvermögens von KI ist der Effekt «Algorithm-Aversion», also die Neigung des Menschen, dass man einer KI gegenüber negativer eingestellt ist als einem Menschen, in der Forschung heiss diskutiert. Wie beurteilst du die Akzeptanz von KI-Lösungen bei Unternehmen und deren Kunden?

Das sehe ich ähnlich. Das sehen wir übrigens auch in den Modellen. Die starken Assoziationen mit KI sind immer noch «Jobverlust» oder «Terminator».

Ich glaube, der Trick ist es, inwiefern man unser Tool als Werkzeug sieht. Bist du sauer auf den Hammer, wenn du dir auf den Daumen haust oder auf dich selber, weil du dir auf den Daumen gehauen hast? Unser Tool bleibt eine Maschine, die auch fehlbar ist und sie wird aber auch besser, wenn der Mensch sie besser bedient. Da glaube ich, steigt die Akzeptanz, wenn man die KI wirklich nur als ein Werkzeug im eigenen Werkzeugkasten sieht. Ähnlich zu einem Hammer im eigenen Werkzeugkasten.

In welchen Branchen wird euer Tool denn als erfolgreicher Teil des Werkzeugkastens eingesetzt? Was sind Business-Cases?

Migros Online nutzt unsere KI, um E-Mail-Betreffzeilen zu schreiben. Unserer zweiten KI haben wir ausserdem beigebracht, wie denn eine Betreffzeile aussieht, die eher geklickt wird. Migros Online sieht mit unserem Tool eine leichte Verbesserung der Klickrate. Aber nicht nur die Klickrate verbessert sich. Du kannst deinen ganzen Prozess verändern, weil du, anstatt nur eine Betreffzeile zu schreiben,



Quelle: neuroflash GmbH.

du dir die Top 5 rausuchen kannst, welche die KI vorschlägt. Danach wählst du dann diejenige, welche beim Menschen am besten ankommt und schickst sie raus. Das hättest du mit menschlicher Kreativität nicht in der gleichen Zeit geschafft, weil es lange dauert, sich sehr unterschiedliche Betreffzeilen auszudenken. Die KI schafft das Gleiche aber in weniger als zehn Sekunden.



Quelle: neuroflash GmbH.

«Wir streben sehr stark an, dass der Output der KI den Menschen im Innovationsprozess optimal unterstützt.»

Nun kann die Integration von externen Inputs und Tools für Unternehmen von Zeit zu Zeit eine grosse Herausforderung sein. Wie gestaltet sich deiner Erfahrung nach die organisationale Einbettung eures Tools in den Marketingprozess von den Unternehmen?

Unser Produkt funktioniert hier als ein Baustein. Nachdem die KI etwas generiert hat, muss ein Mensch filtern und über den Output drüber schauen. Beispielsweise in der Versicherungsbranche oder bei medizinischen Produkten gibt es rechtliche Vorgaben dazu, was man als Unternehmen kommunizieren darf. Dementsprechend wird der KI-Textgenerator zwischen anderen Produktionsschritten wie der Quality-Control bis zur Distributionsplanung und Ausführung eingebettet. Idealerweise wird unser Tool dem Copy-

writer bereitgestellt, der dann einfach schneller und besser produziert und ansonsten funktionieren die Prozesse im Unternehmen wie davor. So sehen wir eigentlich die effektivste Einbettung, weil du nichts am Grundprozess veränderst.

Kann man neuroflash als Chance begreifen, als Unternehmen wieder grössere Teile des Innovationsprozesses zu internalisieren? Also ein gegenläufiger Prozess zu Crowdsourcing und Open Innovation?

Aber ist das wünschenswert? Der Innovationsprozess richtet sich ja am Ende immer nach den Bedürfnissen der Kunden. Die dürfen ja für die Innovation bezahlen, weil es ein Problem z.B. besser löst und deshalb ist es das wert, dafür mehr oder etwas zu bezahlen. Ob du jetzt Crowdsourcing, also eine Masse von Menschen und deren Kreativität nutzt oder eine KI, die ja auch auf Basis menschlicher Kreativität trainiert wurde, ist die eine Frage. Aber es schlägt eigentlich in die gleiche Kerbe. Für mich ist das keine «entweder/oder»- sondern eine «wie kannst du das sinnvoll kombinieren?»-Frage.

Kannst du uns ein Beispiel dafür geben, wie man KI und Crowdsourcing optimal kombinieren kann?

Wir streben sehr stark an, dass der Output der KI den Menschen im Innovationsprozess optimal unterstützt. Das hast du ja auch beim Crowdsourcing z.B., wenn mehrere Leute eine sehr ähnliche Idee haben. Aber du als Kundin oder Kunde willst ja nicht all diese unterschiedlichen, aber am Ende gleichen Ideen evaluieren, sondern du willst nur die eine neue Idee und dann die nächste, aber andere neue Idee sehen. Das haben wir auch schon implementiert. Wir sortieren Vorschläge anhand ihrer Relevanz, aber dann auch nach ihrer Unterschiedlichkeit, sodass du nicht dreimal die gleiche Idee liest, sondern dreimal unterschiedliche, passende und dennoch verschiedene kreative Lösungen. Ich glaube, da muss man schauen, dass man Crowdsourcing und KI nicht einfach nur benutzt, um mehr Output zu generieren, sondern auch zu filtern und zu sortieren. Eine Kuration muss auf jeden Fall stattfinden, um hier den effektivsten Prozess zu haben. Unser Arbeitsgedächtnis, das ist ja der Grund, ist sehr limitiert. Wir können nicht an alles denken. Du kannst mir 50 Ideen bringen und ich

habe 47 davon ziemlich schnell wieder vergessen und die drei, die mir aufgefallen sind, die aber auch in mein Arbeitsgedächtnis passen, über die können wir reden. Wir müssen die Limitation der menschlichen Kognition berücksichtigen, damit die Augmentierung mit der KI optimal funktioniert und dich nicht überfordert.

Überfordernd wirken kann auch die deutsche Sprache mit ihrer komplexen Grammatik und grossem Wortschatz. Viele Tools arbeiten mit der englischen Sprache, aber ihr konzentriert euch auf die deutsche Sprache. Hat denn auch die KI Mühe mit der deutschen Sprache?

Wir mussten ihr schon eine Menge beibringen, um z.B. auf Hochdeutsch zu antworten und nicht irgendwo abzudriften. Sie hatte am Anfang die Eigenheit, einfach auf Englisch weiter zu reden. Das haben wir ihr tatsächlich abgelernt, bis sie es irgendwann verstanden hat, und jetzt sind nur noch ein Prozent der Generation in falscher Sprache. Die können wir auffangen und automatisch übersetzen, sodass der Kunde nie etwas Unpassendes sieht.

Jetzt will ich dir zum Abschluss noch eine letzte Frage mit Blick auf die Zukunft stellen. Dürfen wir uns auch auf Projekte zum Thema «Text-zu-Bild-Generation» von neuroflash freuen?

Ich spreche mal im Präsens, weil, wenn das Interview rauskommt, ist unser Bild-Generator verfügbar. Man kann mit einer einfachen Bild-

beschreibung ein Bild generieren, was dieser Beschreibung entspricht. Also eine Schildkröte unter Wasser im postimpressionistischen Stil. Aber der Bild-Generator hilft auch, noch mal tiefer in die Materie einzusteigen. Wenn man z.B. Partnerschaft ausdrücken möchte, findet man bei Stock-Bildern immer zwei Hände, die sich die



Quelle: neuroflash GmbH.

Hand geben. Das ist nicht schlecht, aber das haben natürlich auch schon 90% der anderen Leute genutzt und da kann man bei uns in Zukunft verbildbare Wörter finden, um Partnerschaft auszudrücken, z.B. Brücke. Eine Brücke ist ebenfalls eine Assoziation mit Partnerschaft. Genau das finde ich sehr spannend. Was willst du sagen, was ist deine Nachricht für die Welt und wie können wir dir das beste Bild dafür liefern? So, dass die Menschen es sofort mit einem Augenaufschlag verstehen, deinen Text lesen und dann immer tiefer zu dir angezogen werden. ■

Das ist doch ein sehr schönes Schlusswort. Lieber Jonathan, ich danke dir für das tolle Gespräch.

«Golden Crowd»

Engaging the Users that Deliver
on Your Crowdsourcing Goals

Companies run branded crowdsourcing contests to achieve two main goals: generate ideas and create brand equity. This paper provides an empirical typology of contest users and reveals five distinct user types: jacks-of-all-trades, devoted brand fans, pure innovators, reward seekers and passive customers. Based on the users' characteristics we derive actionable insights on how to attract, recruit and manage the crowd for different purposes.

Prof. Dr. Volker Bilgram, Prof. Dr. Alexander Hahn, Prof. Dr. Johann Füller

Companies run branded crowdsourcing contests to achieve two main goals: collect and refine innovative ideas and create brand equity within the contest community and beyond by engaging users in meaningful interactions that result in positive attitudes and desirable behavior such as word-of-mouth (Bilgram et al., 2013; Hutter et al., 2010). Therefore, crowdsourcing contests invite individuals such as innovative users or brand fans to solve challenges in return for a prize (Afuah & Tucci, 2012; Boudreau & Lakhani, 2013).

Much research focuses on how companies can design and manage their contests to receive more and better innovative ideas (Leimeister et al., 2009; Pötz & Schreier, 2012). Consumer goods companies and, in particular, those offering high-involvement products increasingly embrace crowdsourcing to intensify consumer–brand relationships. However, research on how to engage different user types to strengthen the company’s brand and balance innovation and marketing purposes is scarce. Which users can create more and better ideas? Which users help in promoting marketing goals such as awareness of the brand or purchase intention?

The research goal of the present empirical research on a branded contest is to provide a better understanding of the heterogeneous crowd and to draw a nuanced picture of the purposes various types of crowd members can serve.

The authors find five distinct groups of user types by employing a two-stage cluster algorithm to data on users’ motivation, ability, and opportunity to engage in the contest. Managers can use the results of this study to target and recruit specific user types. This ensures that the crowd solves their challenges in the best possible manner – be it innovation or marketing, or both.

Theoretical Background

Crowdsourcing is de rigueur in innovation management (Boudreau & Lakhani, 2013) as well as in marketing management (Lawrence et al., 2013). Managers employ crowdsourcing in both domains for various purposes from idea generation, idea evaluation, and problem-solving to strengthening consumer–brand relationships and stimulating word-of-mouth (Bilgram, 2013).

To guide these managerial agendas, researchers have explored the mechanisms for successful crowdsourcing initiatives. Among other parameters, such as tool support, community management or incentive strategy, the design of the community crowd is very important (Prpic et al., 2015). Companies need to align the diversity of their crowd with their crowdsourcing goals since crowd members with different characteristics and skills can help with different challenges.



Prof. Dr. Volker Bilgram

Professor for Global Innovation Management,
TH Nürnberg, and Partner, HYVE Innovate GmbH,
Munich, Germany
+49 89 189 081 100
volker.bilgram@th-nuernberg.de

Prof. Dr. Alexander Hahn

Professor for Emotion AI and
User Experience Research,
TH Nürnberg, Germany
+49 911 5880 2840
alexander.hahn@th-nuernberg.de

Prof. Dr. Johann Füller

Professor for Innovation and Entrepreneurship,
Department of Strategic Management, Marketing
and Tourism, Innsbruck University, Austria,
and Chairman of HYVE AG, Munich, Germany
+43 512 507 72310
johann.fueller@uibk.ac.at

The striking advantage of crowdsourcing is the diversity of the individuals in the crowd community (Boudreau & Lakhani, 2013). The heterogeneous crowd with its diversified knowledge, skills and interests can be more efficient in tackling a problem and creating novel ideas than traditional organizational settings such as functional units (Brabham, 2013; Franke et al., 2013). As crowdsourcing contests rely on the self-selection principle, they are open to anyone interested (Howe, 2009). Users do not have to meet specific preselection criteria (Jeppesen & Lakhani, 2010). Consequently, the crowd is a black box or *like a box of chocolates – you never know what you’re gonna get*.

For innovation, this is a benefit rather than a drawback: Innovation managers are highly interested in creating relevant, novel ideas or solutions. The self-selection mechanism ensures that suitable users participate in the contest, i.e., users who are motivated to contribute and qualified to tackle the challenge. Jeppesen and Lakhani (2010) found that 72.5% of the winning submissions in their sample were partially or fully based on existing solutions available to the external user. This strong contribution of external knowledge shows that for companies it does not matter whether the idea comes from the outside – as long as the idea is good and the company’s problem gets solved.

Management Summary

This paper sheds light on the black box crowd by providing an empirical typology of crowdsourcing contest users. It defines five distinct user types based on their motivation, abilities and opportunities. The findings provide guidelines on how to identify these user types, motivate them to participate and manage them throughout the process to achieve innovation and/or marketing goals.

In contrast, traditional market research – which was an early form of user integration – focuses on representative samples of existing target groups. Here, careful sampling of users does matter; otherwise, companies risk basing their decisions on invalid answers from respondents who do not represent their target groups.

In recent days, however, the immense diversity of users in a crowd has become a challenge for companies and requires sophisticated recruitment and management to consistently match the crowd with the goals of the crowdsourcing initiative.

Empirical Approach

Data Collection

To explore this diversity of crowd users, the authors compiled a multi-source data set of the users of the SWAROVSKI GEMS™ Lifestyle Electronics Design Competition 2011. The contest's challenge was to create lifestyle electronics designs, such as mobile phones, notebooks or tablet PCs with incorporated gemstones. In addition to the submission of freely created designs, a configurator was implemented to facilitate participation and attract users that lack the skillset to create high-quality ideas. Besides relying on Swarovski's own community and an established crowdsourcing community for creative tasks, recruiting efforts included announcements on social media, at design schools and in other lifestyle and design communities. The company announced to reward users with a total of 9,000 EUR in prize money. A jury consisting of six experts selected the winners based on several openly available criteria. In total, more than 2,600 users signed up for the challenge and created more than 2,500 ideas.

After completion of the contest, all participants were invited to complete an online survey. The response rate of 6.7% yielded 147 respondents. To test for non-response bias, the means of

early and late respondents regarding their activity on the contest platform were compared and showed no significant differences (Armstrong & Overton, 1977). The survey data was complemented by actual behavioral data of the users on the contest platform.

Measurement

In the data set, the authors included active and passive cluster variables.

The active cluster variables are based on the established MAO-framework of users' motivation, ability and opportunity to engage in various tasks (Jiang et al., 2012; MacInnis et al., 1991). All active cluster variables are measured via established multi-item survey variables. Motivation, defined as the users' desire and readiness to engage in the contest, is operationalized via the two variables of intrinsic and extrinsic motivation (Deci & Ryan, 1985). Ability refers to the users' skills or proficiencies in engaging in the contest challenge and is operationalized via innovator characteristics, such as creative abilities (Füller et al., 2012). Opportunity, defined as the extent to which users perceive the contest as relevant and their skills as suitable to solve the challenge, is operationalized via brand ownership, self-determination and perceived impact (e.g., Deci & Ryan, 1985).

To describe the clusters in terms of desired user behavior, the authors employ the passive cluster variables of brand passion and word-of-mouth (Albert et al., 2013; Alexandrov et al., 2013). Furthermore, actual contest performance is measured via the number of ideas, which is the number of submitted ideas as well as the quality of ideas as measured by the evaluation of the jury. Specifically, the jury selected 309 ideas as promising and the authors counted for each user how many ideas had been selected.

Data Analysis

To analyze this data, the authors employed a two-step clustering procedure. Firstly, they determined the number of clusters. Secondly, they assigned users to clusters. They began by identifying outliers using single-linkage clustering and eliminated 16 users as outliers because they formed clusters of their own (Punj & Stewart, 1983). Next, the authors determined an appropriate number of clusters using Ward's (1963) algorithm. As Ward's algorithm is sensitive to scaling, the authors standardized the active cluster variables by means of a z-transformation (Milligan & Hirtle, 2003). Various test statistics were used to determine an appropriate number of clusters. Duda and Hart's (1973) $Je(2)/Je(1)$ index, the pseudo-

T-squared index as well as Caliński and Harabasz's (1974) pseudo-F index suggested a five-cluster solution. The authors also examined the face validity of this solution by inspecting the dendrograms.

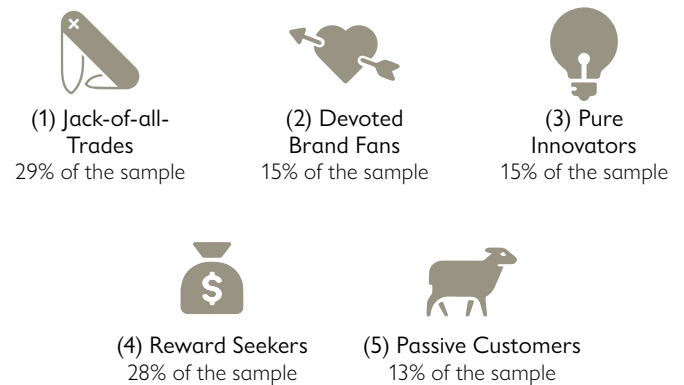
In accordance with the users' motivation, ability, and opportunity to engage in the contest, the resulting groups are called: (1) jacks-of-all-trades, (2) devoted brand fans, (3) pure innovators, (4) reward seekers, and (5) passive customers (see figure 1).

In the second step of this cluster analysis, the authors assigned observations to clusters using a hybrid approach. The authors employed Ward's algorithm to obtain a starting solution and then employed a k-means algorithm to optimize this solution (Arabie & Hubert, 1994; Punj & Stewart, 1983). Next, the authors tested for the distinctiveness of the cluster solution. Kruskal-Wallis tests demonstrated that the means of the variables differ significantly across clusters ($p < 0.01$). Moreover, a multivariate analysis of variance yields additional evidence of cluster distinctiveness as the means of the groups are not equal ($p < 0.01$). When interpreting the cluster solution for content validation, the authors focused on the values of the active cluster variables as shown in figure 2. Additionally, the passive cluster variables are shown.

Results

The analysis uncovered five clusters that differ from one another across the active cluster variables. The groups also show

Figure 1: User Types in the Crowdsourcing Contest



Source: Authors' illustration.

different attitudes and behaviors across the passive cluster variables after the contest.

The largest cluster in the sample is called the **jacks-of-all-trades**, as they bring a lot to the table. They are loyal customers of the brand, innovative, highly motivated and feel empowered by participating in the crowdsourcing challenge. However, looking at how they can contribute to the crowdsourcing contest, the results are divided. On the one hand, they are passionate brand fans who serve as useful brand ambassadors.

Figure 2: Cluster Characteristics

		Jacks-of-all-Trades n=38	Devoted Brand Fans n=20	Pure Innovators n=19	Reward Seekers n=37	Passive Customers n=17
Active Cluster Variables	Innovator's Characteristics	++	o	++	+	-
	Intrinsic Motivation	++	++	++	o	--
	Extrinsic Motivation	++	--	-	+	--
	Brand Ownership	++	++	--	+	++
	Self-Determination	++	+	+	o	-
	Perceived Impact	++	++	+	-	--
Passive Cluster Variables	Brand Passion	+	+	++	-	--
	Word-of-Mouth	++	+	++	-	--
	Quantity of Ideas	o	++	+	-	--
	Quality of Ideas	o	-	++	--	o

++ very high mean of the variable in the cluster; o average mean, -- very low mean

Source: Authors' illustration.

Main Propositions

- 1 The users active in crowdsourcing contests can be categorized into five different types.
- 2 The user types differ in their motivation, abilities and opportunities and show different innovation- and marketing-related behavior in the contest.
- 3 The user types vary in their ability to help achieve marketing and/or innovation goals.
- 4 The categorization has various implications on how to design different elements of a contest, such as the challenge, recruiting and community management.

knowledge and skills of innovators, as they do not contribute high-quality ideas. The devoted brand fans do create by far the most ideas of any group but these are mostly of poor quality. Despite their rather low innovation performance, these users still feel passionate about the brand after the contest and keep spreading the message.

In contrast to the devoted brand fans who own several products of the brand the group of **pure innovators** is primarily attracted to the crowdsourcing contest by the actual innovation challenge. They have hardly any previous affiliation with the brand. They also show high levels of intrinsic motivation, but at the same time high extrinsic motivation. Also, they are the most innovative and skilled group of participants. While they generate high-quality ideas, they submit fewer ideas – thus not “polluting” the contest with low-quality submissions. Interestingly, despite low previous brand usage, *pure innovators* develop a strong passion for the brand and intend to engage in word-of-mouth after the contest even more than the *devoted brand fans*.

On the other hand, they submit only an average number of ideas of mediocre quality.

The group of **devoted brand fans** is characterized by very high levels of intrinsic and very low levels of extrinsic motivation. These users enjoy spending time on the platform and feel empowered by expressing their creativity and helping their beloved brand. However, they are not equipped with the

The **reward seekers** experience significantly lower feelings of empowerment during contest participation, meaning they perceive less freedom and self-determination while contributing and do not expect to make an impact on the company’s future through their contributions. While their intrinsic motivation is low, they show a high level of extrinsic motivation. This motivational profile indicates that they primarily participate



Source: © Adobe Stock.

for monetary rewards. With rather strong innovators' characteristics, they also appear to be equipped with the skills to compete for the reward. However, the contribution *reward seekers* make to the contest is surprisingly poor. Not only are their ideas the poorest among all clusters, *reward seekers* also submit far fewer ideas than the average participant. In line with the low empowerment they experience, they do not feel passionate about the brand after the contest and do not intend to spread recommendations for the brand.

The final cluster consists of regular buyers of the brand and is called **passive customers**. These users have a very high affiliation with the brand; however, they differentiate themselves from the other clusters by their poor abilities and very low levels of motivation and empowerment. Similarly, they show very little brand passion and intention to engage in word-of-mouth after the contest. Passive customers contribute very few ideas, which are of average quality.

Implications and Discussion

Monoculture vs. Diversity: How to Assemble the Crowd

The analysis above sheds light on the black box of crowd members and the output they can create in a crowdsourcing contest. Depending on the goals of a crowdsourcing project, insights can be derived regarding the ideal participants and suitable recruiting strategies. In general, three of the five clusters seem to be particularly valuable for companies: *jacks-of-all-trades* (to drive brand equity), *devoted brand fans* and *pure innovators* (to drive idea output and brand equity).

The authors argue that a more targeted recruiting strategy may play an essential role in assembling a suitable crowd and matching it with the challenges to be tackled (see the recommendations for recruiting and activating selected crowd clusters in the box "Lessons Learned").

At the same time, the authors advise against creating "monoculture" crowdsourcing communities as crowdsourcing communities benefit from the diversity of the crowd and different roles users take on in temporary communities. For instance, companies aiming at generating innovative ideas may feel tempted to cater solely to pure innovators as they are the obvious participants of choice due to their innovation skills. However, a typical challenge in any crowdsourcing initiative has to feature initial content on the platform to be attractive to new users. In providing this content, *devoted brand fans* can be a major factor. With their massive content creation, they can help kick-start the

initiative and lure more and possibly more innovative users. Generally, the authors recommend that companies maintain the diversity of the crowd while emphasizing recruiting efforts for particular users that support the goals of the project.

Pure Innovators: Innovation Prowess and Future Brand Fans

Managers looking for high-quality ideas should hunt for *pure innovators*, who are keen to solve problems and have the skills and knowledge to submit superb ideas. In the case of SWAROVSKI GEMS™, designs created by users served as an inspiration for new product development (for some examples see Millard, 2012) and for communication with consumers and partners. For instance, SWAROVSKI GEMS™ prototyped outstanding user ideas to exhibit innovative use cases of how gemstones can be used in products at B2B trade fairs. Although pure innovators join crowdsourcing contests almost exclusively for the innovation challenge, the analysis revealed that over the course of the crowdsourcing initiative they could also be turned into brand fans willing to serve as influencers. This is even more remarkable as *pure innovators* were not a priori part of the customer base and typically had no prior relationship with the brand.

The downside is that *pure innovators* are a rare and hard-to-recruit user type. Managers need to approach the recruitment strategy of this group differently as *pure innovators* usually

Lessons Learned

- 1 Managers should proactively manage the black box crowd via analyzing psychological and behavioral traits of the users and adjusting the recruiting strategy.
- 2 By recruiting *jacks-of-all-trades*, managers can drive brand equity.
- 3 By recruiting *devoted brand fans* and *pure innovators*, managers can drive idea output as well as brand equity.
- 4 By designing the contest challenge less competitively, managers can avoid *reward seekers*.
- 5 For *passive customers*, managers can design convenient and engaging tasks, such as betting on winning ideas.

are neither following the brand nor buying its products. One promising strategy to attract *pure innovators* is a combination of targeted search and the self-selection principle. First, companies should select the right places to seed the “call for contributions”. Second, they need to rely on the mechanism of self-selection so that only interested and capable users who enjoy solving the task and have a realistic chance of winning the contest will opt to participate in the challenge. A promising place for seeding a crowdsourcing challenge are so-called “communities of interest” that are relevant to the crowdsourcing challenge. For instance, subreddits on Reddit, Facebook groups or subsections on Medium or Quora are valuable online platforms that may be utilized. While crowdsourcing contests are usually conducted

Crowdsourcing contests can be both a viable innovation and branding tool if they attract the right people for the task.

online, managers should not forget about offline sources of talent to tackle the challenges, such as universities, meetups, associations, conferences and events. For a more targeted search, the authors suggest involving colleagues with specific domain knowledge in the area of the innovation challenge to learn about specific communities of innovators, e.g., where they meet, how they communicate and what motivates them.

Finding *pure innovators*, however, is only half the battle. Attracting and convincing them to participate may be an even trickier challenge – especially in modern times where the competition for attention has escalated. The present research shows that *pure innovators* have hardly any prior brand affiliation and just enjoy being creative and solving problems. Thus, companies can attract them by focusing less on the brand narrative and more on the innovation challenge. For example, managers can share background information and domain knowledge, such as relevant new technologies or consumer trends, to address *pure innovators’* interest in problem-solving and their intrinsic motives, such as tackling challenges and learning about new technologies.

Devoted Brand Fans: Loyal Influencers and Massive Content Creators

For companies primarily interested in creating brand equity, the *devoted brand fans* are the “go-to-crowd”. They are loyal customers who love to support the brand without expecting monetary compensation. Participating in branded contests makes

them feel included and empowered. As a result, *devoted brand fans* spread positive messages that help companies increase awareness for the contest and build brand equity.

In line with their dedication to the brand, devoted brand fans also contribute a vast number of ideas albeit of relatively poor quality. Such users will boost the crowdsourcing contest by creating a lot of content and ideas. In doing so, they kick-start the community activity and help overcome the dilemma that users usually do not want to be among the first to contribute in a crowdsourcing environment.

Devoted brand fans are already customers of the brand, so managers can recruit them via customer databases or by seeding their “call for contributions” in their own social media channels. Additionally, managers should consider creating their own brand communities to ensure easy and ad-hoc access irrespective of the algorithmic limitations of social media platforms owned by third parties.

In terms of contest design, it is important that the goals of the contest are reflected in the incentive strategy. Specifically, crowdsourcing contests that aim to improve brand equity should consider offering rewards for certain user behaviors, such as sharing content or inviting other users. Moreover, companies can tailor the nature of the rewards to the intrinsic motives that drive this group of participants. Recognition by the company or non-monetary rewards, e.g., special branded devotional items or invitations to visit company sites, can serve as potent incentives. As *devoted brand fans* feel highly empowered in the contest environment, these feelings of self-determination and meaning can be supported by coherent storytelling, intensive moderation by the company’s experts and transparent communication on how the contest impacts the company’s future.

Jacks-of-all-Trades: Backbone of the Community and Brand Advocates

Just like the *devoted brand fans*, the *jacks-of-all-trades* are regular customers of the brand and constitute a large part of the contest crowd, forming the backbone of the community with an extremely versatile profile. They are highly motivated, feel tremendously empowered during the contest and show both passion for the brand and intent to engage in word-of-mouth behavior after participation. The only drawback is their less than superior contribution of ideas, since both quantity and quality are only average. Companies are advised to capitalize on the *jacks-of-all-trades* to increase the community and make their platform an attractive and vivid place. Furthermore, this group is predestined to become advocates of the brand.

With regard to recruitment and activation of this part of the crowd, the same strategies apply as for the *devoted brand fans*.

Reward Seekers: Stimulating the Competitive Element

The benefit of reward seekers is somewhat ambiguous. In a way, they fit the nature of the crowdsourcing contest very well as they are reward-driven and highly competitive. They have little intrinsic motivation and seem to participate mostly for external reward. In the same vein, they hardly feel empowered during the contest and show no passion for the brand, let alone become active ambassadors. Unfortunately, their ambition to win the contest prize does not equate to the quantity and quality of the ideas they contribute. Some reward seekers may be opportunistic, hoping for a lucky contest victory with shallow or re-used ideas. As *reward seekers* show little to no contribution to building brand equity or generating ideas, the authors recommend designing contests that do not overstate the

competitive nature but foster a spirit of collaboration to attract fewer reward seekers. Nevertheless, including a minor share of *reward seekers* in the contest may stimulate competitiveness within the community and eventually result in better output.

Passive Customers: Present but in Need of the Right Interaction Format

Passive customers were the smallest cluster in the sample. Across all cluster variables, they score very low except for brand ownership. These customers seem to be rather traditional buyers who do not care about being involved in this type of co-creation. It might be ascribed to their brand ownership that they still follow the initiative despite a lack of empowerment and passion for the brand. Generally, *passive customers* appear to be a little “out of place” in the contest. Companies should connect these customers with appropriate content and links to utilize their brand interest. For example, some more conventional marketing initiatives, such as raffles or links to related shopping oppor-

Figure 3: Recommendations on How to Harness, Recruit and Manage Different Types of Users

User Type	Qualities and how best to harness them	How to recruit and manage them
Jack-of-all-Trades	<ul style="list-style-type: none"> • Backbone of the community • Spread positive word-of-mouth 	<ul style="list-style-type: none"> • Recruit via your existing social media channels or customer databases • Provide a coherent story and meaning to your challenge
Devoted Brand Fans	<ul style="list-style-type: none"> • Massive content creators that turn the contest into a vibrant innovation community • Participation nourishes and intensifies their bond with the brand and word-of-mouth behavior • Intrinsic motivation may help to stimulate a sense of collaboration rather than pure competition 	<ul style="list-style-type: none"> • Recruit via your existing social media channels or customer databases • Ensure Devoted Brand Fans do not pollute the contest with entirely irrelevant content • Integrate non-monetary incentives that support intrinsic motivation (recognition, feedback, resources from experts etc.) • Reward them for activities beyond creating ideas, e.g., sharing content, inviting other users and supporting other users
Pure Innovators	<ul style="list-style-type: none"> • Contribution of outstanding ideas • Participation in the innovation challenge may turn them into legit brand fans • Brand ambassadors engaging in word-of-mouth 	<ul style="list-style-type: none"> • Search for them in specific communities of interest both online and offline (e.g., subreddits, subsection on Medium; or in research groups, meetups) • Attract them by focusing less on the brand but the innovation challenge, e.g., by providing the latest insights and data relevant to the challenge and interesting to these special users
Reward Seekers	<ul style="list-style-type: none"> • No direct value added for brand equity (neither brand passion nor word-of-mouth) or idea generation (low-quality ideas) • Might spur the competitiveness of the contest and potentially increase the quality of submissions 	<ul style="list-style-type: none"> • Do not cater to opportunistic customers in crowdsourcing initiatives too much • Therefore, do not overstate the competitive nature of your contest and the monetary incentives
Passive Customers	<ul style="list-style-type: none"> • Contributors of very few but solid ideas • Contest serves as a starting point to interact with them in different ways 	<ul style="list-style-type: none"> • Their attention to the brand should be redirected and utilized in more conventional ways • Make sure you do not confuse your customers

Source: Authors' illustration.

tunities (e.g., special editions), may serve as viable means to activate *passive customers*. Companies may also want to try to include a task in the contest that specifically caters to passive customers' needs. For instance, these users could help evaluate ideas by betting on the winning idea, which represents a more conventional customer activity and role. Measures that cater to *passive customers* need to be carefully designed and integrated in the crowdsourcing initiative to avoid confusing them.

One promising strategy to attract pure innovators is a combination of targeted search and the self-selection principle.

Conclusion

Our empirical research draws a detailed picture of the various protagonists in crowdsourcing contests and provides actionable insights on how to attract, recruit and manage the crowd for different purposes. Figure 3 provides an overview of our findings and recommendations. With the rather small sample size and the strong brand in our case study, we hope that future research can draw a more robust and balanced picture by analyzing larger sample sizes and a wider variety of contests. The findings highlight that crowdsourcing contests can be both a viable innovation and branding tool if they attract the right people for the task. By carefully recruiting the crowd, companies can ensure the right mix of creative minds and brand lovers that can deliver on innovation and/or marketing goals. ■

References

- Afuah, A., & Tucci, C. L. (2012). Crowdsourcing as a solution to distant search. *Academy of Management Review*, 37(3), 355–375.
- Albert, N., Merunka, D., & Valette-Florence, P. (2013). Brand passion: Antecedents and consequences. *Journal of Business Research*, 66(7), 904–909.
- Alexandrov, A., Lilly, B., & Babakus, E. (2013). The effects of social- and self-motives on the intentions to share positive and negative word of mouth. *Journal of the Academy of Marketing Science*, 41(5), 531–546.
- Arabie, P., & Hubert, L. (1994). Cluster analysis in marketing research. In R. Bagozzi (Ed.), *Advanced methods of marketing research* (pp. 160–179). Blackwell Business.
- Armstrong, J. S., & Overton, T. S. (1977). Estimating nonresponse bias in mail surveys. *Journal of Marketing Research*, 14(3), 396–402.
- Bilgram, V. (2013). Performance assessment of co-creation initiatives: A conceptual framework for measuring the value of idea contests. In A. Brem & É. Viardot (Eds.), *Evolution of innovation management* (pp. 32–51). Palgrave Macmillan.
- Bilgram, V., Füller, J., Koch, G., & Rapp, M. (2013). The potential of crowdsourcing for co-marketing: How consumers may be turned into brand ambassadors. *Transfer, Werbeforschung & Praxis*, 59(4), 42–48.
- Boudreau, K. J., & Lakhani, K. R. (2013). Using the crowd as an innovation partner. *Harvard Business Review*, 91(4), 61–69.
- Brabham, D. C. (2013). *Crowdsourcing*. MIT Press.
- Caliński, T., & Harabasz, J. (1974). A dendrite method for cluster analysis. *Communications in Statistics – Theory and Methods*, 3(1), 1–27.
- Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. Plenum Press.
- Duda, R. O., & Hart, P. E. (1973). *Pattern classification and scene analysis*. Wiley.
- Franke, N., Keinz, P., & Klausberger, K. (2013). Does this sound like a fair deal? Antecedents and consequences of fairness expectations in the individual's decision to participate in firm innovation. *Organization Science*, 24(5), 1495–1516.
- Füller, J., Matzler, K., Hutter, K., & Hautz, J. (2012). Consumers' creative talent: Which characteristics qualify consumers for open innovation projects? An exploration of asymmetrical effects. *Creativity and Innovation Management*, 21(3), 247–262.
- Howe, J. (2006). The rise of crowdsourcing. *Wired Magazine*, 14(6), 1–4.
- Hutter, K., Hautz, J., Füller, J., Matzler, K., & Mayr, A. (2010). Ideenwettbewerbe als innovatives Markenbindungsinstrument. *Marketing Review St. Gallen*, 27(4), 26–35.
- Jeppesen, L. B., & Lakhani, K. R. (2010). Marginality and problem-solving effectiveness in broadcast search. *Organization Science*, 21(5), 1016–1033.
- Jiang, K., Lepak, D. P., Hu, J., & Baer, J. C. (2012). How does human resource management influence organizational outcomes? A meta-analytic investigation of mediating mechanisms. *Academy of Management Journal*, 55(6), 1264–1294.
- Lawrence, B., Fournier, S., & Brunel, F. (2013). When companies don't make the ad: A multi-method inquiry into the differential effectiveness of consumer-generated advertising. *Journal of Advertising*, 42(4), 292–307.
- Leimeister, J. M., Huber, M., Bretschneider, U., & Krömer, H. (2009). Leveraging crowdsourcing: Activation-supporting components for IT-based ideas competition. *Journal of Management Information Systems*, 26(1), 197–224.
- MacInnis, D. J., Moorman, C., & Jaworski, B. J. (1991). Enhancing and measuring consumers' motivation, opportunity, and ability to process brand information from ads. *Journal of Marketing*, 55(4), 32–53.
- Millard, D. (2012, May 8). Jewellery and gadgets merge under Swarovski. Jeweller. <https://www.jewellermagazine.com/Article/2351/Jewellery-and-gadgets-merge-under-Swarovski>
- Milligan, G. W., & Hirtle, S. C. (2003). Clustering and classification methods. In I. B. Weiner (Eds.), *Handbook of psychology* (pp. 165–186). Wiley.
- Pötz, M. K., & Schreier, M. (2012). The value of crowdsourcing: Can users really compete with professionals in generating new product ideas? *Journal of Product Innovation Management*, 29(2), 245–256.
- Prpić, J., Shukla, P. P., Kietzmann, J. H., & McCarthy, I. P. (2015). How to work a crowd: Developing crowd capital through crowdsourcing. *Business Horizons*, 58(1), 77–85.
- Punj, G., & Stewart, D. (1983). Cluster analysis in marketing research: Review and suggestions for application. *Journal of Marketing Research*, 20(2), 134–148.
- Ward, J. H. J. (1963). Hierarchical grouping to optimize an objective function. *Journal of the American Statistical Association*, 58(301), 236–244.



**JETZT
ABO
BESTELLEN**



Hier gelangen Sie zu unserem Shop

Möchten Sie weiterhin von exklusivem und qualitativ hochwertigem Marketingwissen profitieren? Dann schliessen Sie ein Abonnement der Marketing Review St. Gallen ab. Ihr Premium-Magazin für Marketing im D/A/CH-Raum.

Qualität ohne Kompromisse.

Beware of Sore Losers!

Crowdsourcing Might Have Backfiring
Effects Among Participants

This research identifies a surprising downside of crowdsourcing: Those participants whose ideas are not selected disengage from the brand after having learned about the outcome. From this perspective, crowdsourcing might better be framed as a communal effort rather than a competition.

Tatiana Karpukhina, Martin Schreier, Chris Janiszewski, Hidehiko Nishikawa

Crowdsourcing, that is, soliciting ideas from a crowd of anonymous participants, has gained popularity among companies across industries over the last few decades. In particular, firms are frequently observed to collect ideas from their customers, and customers seem to be excited. For example, PepsiCo's Doritos brand has been regularly inviting its customers to create their Super Bowl commercials for over a decade, Starbucks has implemented over 200 ideas from 150,000 customers to improve their operations and service offerings, and Lay's "Do Us a Flavor" campaign generated an impressive 3.8 million submissions.

For companies the benefit of launching a crowdsourcing campaign is two-fold. First, crowdsourcing may be an effective means to innovate. In particular, studies show that crowdsourced ideas can be more novel and provide a better customer benefit compared to internally developed ideas for new products (Kristensson et al., 2004; Magnusson et al., 2003; Poetz & Schreier, 2012). In addition—or because of these unique characteristics—, crowdsourced new products have also been shown to sell better—and for longer (Nishikawa et al., 2013).

Second, research has demonstrated that crowdsourcing may function as a marketing tool. Specifically, merely knowing that a company engages in crowdsourcing makes observing customers feel psychologically empowered and they perceive such user-driven brands, compared to more traditional brands, as more customer-oriented and innovative (Dahl et al., 2015; Paharia & Swaminathan, 2019; Schreier et al., 2012). In short, customers value companies that actively seek feedback from people like themselves (Hoyer et al., 2010; Liu & Gal, 2011) and they value the products that result from such initiatives. Indeed, marketing crowdsourced new products as such, that is, marketing the focal product as "customer-ideated" at the point-of-sale has been shown to incrementally increase the

sales of the focal product by up to 20% in the course of a series of field experiments conducted with the Japanese retail chain Muji (Nishikawa et al., 2017).

Furthermore, inviting customers to participate in a crowdsourcing campaign may be an effective engagement tool. Theoretically, any form of customer engagement should have a positive marketing impact (Harmeling et al., 2017; Verhoef et al., 2010). Thus, we might also predict positive effects from crowdsourcing participation. Importantly, however, a crowdsourcing campaign does not end with idea collection. Out of the many ideas submitted the company selects only one or a handful of winners. It is here where an unresolved tension exists: among those whose ideas are not selected, will there be positive or negative effects? Likely the latter.

Not winning implies that one's idea is rejected. Experiencing rejection can be emotionally frustrating and disappointing despite objectively the low a priori odds of winning (Blackhart et al., 2009; DeWall & Bushman, 2011). Can this experience taint the focal consumer-brand relationship? Crowdsourcing participants tend to demonstrate high levels of involvement and identification with the firm to begin with, as they are often recruited from the company's fan base via Facebook, Twitter and other social media platforms (Djelassi & Decoopman, 2013; Franke et al., 2013). Hence, firms should be wary of upsetting these valuable customer groups. If the non-winning participants indeed take the rejection close to heart, is there a way to frame crowdsourcing differently without compromising on the quality of the ideas or the cost of the campaign?

In order to address these questions, we conducted four experiments (the original research is reported in more detail in Karpukhina et al., 2022). In short, this research tested whether backfiring effects indeed exist and how the framing



Dr. Tatiana Karpukhina
Institute for Marketing
Management, Department of
Marketing, WU Vienna University
of Economics and Business,
Vienna, Austria
tatiana.karpukhina@wu.ac.at

Prof. Dr. Martin Schreier
Department of Marketing,
WU Vienna University of Economics
and Business, Vienna, Austria
martin.schreier@wu.ac.at

Prof. Dr. Chris Janiszewski
Professor of Marketing,
Russell Berrie Eminent Scholar
Chair, Warrington College
of Business Administration,
University of Florida,
Gainesville, FL, USA
chris.janiszewski@warrington.ufl.edu

Prof. Dr. Hidehiko Nishikawa
Professor of Marketing,
Department of Markets
and Management, Faculty of
Business Administration,
Hosei University, Tokyo, Japan
hidehiko@hosei.ac.jp

Table 1: Study Design Summary (Studies 1–3)

Study	Experimental Design
Study 1	N = 183 (full study completion including 3 winners), M_{age} = 22.32, 61.4% female
Crowdsourcing firm	Local student café on campus (WU Vienna)
Task	New “grab&go” breakfast bundle
Experimental design	2-part between-participants (student sample)
Experimental manipulation	Crowdsourcing participants vs. non-participants
Winner announcement	In the second lab session (Time 2)
Dependent measure	50% off coffee voucher redemption behavior (incidence and time)
Study 2a	N = 152 (full study completion including 4 winners), M_{age} = 22.23, 72.7% female
Crowdsourcing firm	University merchandise store (WU Vienna)
Task	New product ideas
Experimental design	2-part 2 x 2 between-participants (student sample)
Experimental manipulations	1. crowdsourcing participants vs. non-participants 2. competitive vs. communal framing of the crowdsourcing task
Winner announcement	In the second lab session (Time 2)
Dependent measures	Customer engagement composed of purchase and word-of-mouth intention (1=low, 7=high)
Study 2b	N = 169 (full study completion including 1 winner), M_{age} = 22.54, 50.5% female
Crowdsourcing firm	New Asian restaurant on campus (WU Vienna)
Task	Name for the restaurant
Experimental design	2-part between-participants (student sample)
Experimental manipulation	Competitive vs. communal framing of the crowdsourcing task
Winner announcement	In the second lab session (Time 2)
Dependent measures	Customer engagement composed of purchase and word-of-mouth intention (1=low, 7=high)
Study 3	N = 169 (full study completion including 1 winner), M_{age} = 22.54, 50.5% female
Crowdsourcing firm	One of the top three convenience store chains in Japan
Task	Name for a new mascot
Experimental design	Difference-in-differences field experiment
Experimental manipulation	Competitive vs. communal framing of the crowdsourcing task
Winner announcement	By email invitation to log-in and check the results
Dependent measure	Loyalty card spending tracking for 28 days pre- and 28 days post winner announcement. Pre-announcement spendings allows for balanced comparison of the experimental groups post-intervention.

Note: For more details regarding the studies' methods and findings see Karpukhina et al., 2022.

of crowdsourcing affects participants' post-campaign engagement.

Methodology

We ran four experiments embedded in real crowdsourcing campaigns in cooperation with local brands.

All studies encompassed three major phases: (1) collection of ideas by means of crowdsourcing; the key experimental manipulations took place at this stage; (2) announcement of the winning idea(s) selected by the focal brand representative(s); (3) collection of customer engagement measures, such as voucher redemption behavior, future purchase and word-of-mouth intention, and actual spending behavior.

With the aim to investigate potential negative effects among non-winning crowdsourcing participants, we compared customers who participated in a firm's crowdsourcing to those who did not. Critically, the decision to participate was not left to the customer as this would have posed a severe threat to the internal validity of the test: customers who decide to participate in a crowdsourcing initiative may be systematically different from those who decide against it. Thus, participants were randomly assigned to a crowdsourcing participation or a control condition. Therefore, any differences observed between conditions are due to the treatment, the focal crowdsourcing participation.

In addition to testing the backfiring effect of crowdsourcing, we utilized three different contexts to assess how the framing of crowdsourcing affects results. In particular, we developed a fundamentally different approach to framing the focal crowdsourcing call (communal effort vs. competition).

Importantly, all studies followed the recommended best practices of conduc-

Management Summary

Crowdsourcing is frequently used by firms to leverage the collective creativity of their customers. This research identifies a backfiring effect among crowdsourcing participants: those whose ideas are not selected (i.e., the overwhelming majority), disengage from the crowdsourcing brand, with implications for subsequent sales. From this perspective, firms might consider framing crowdsourcing as a communal effort rather than a competition.

ting crowdsourcing (Hanine & Steils, 2019; Hofstetter et al., 2018; Piezunka & Dahlander, 2019). Specifically, we actively informed participants about the result of the crowdsourcing and thanked them for their contributions. Furthermore, to recognize their time and effort, parti-

cipants were offered small gifts that either were available to all or raffled out to some. Finally, standard monetary incentives were paid to all participants enrolled in the crowdsourcing through the research lab.

A total of 5,481 unique customers (72.8% female) submitted 5,217 ideas in the course of four experiments. For a summary of the various study designs employed, see table 1.

Findings and Recommendations

The Overlooked Downside

Study 1 provides initial evidence for the unintended negative effect of crowdsourcing. The study was conducted in cooperation with a local student café. The owner was looking to add “grab&go” breakfast bundles to their offerings and

needed ideas. All participants received a 50% off coffee coupon as a small token of appreciation at the end of the study. We observed voucher redemption behavior at the focal café over a 30-day period. The results demonstrate that non-winning crowdsourcing participants significantly delayed their next interaction with the local café. Despite an attractive discount, only 9% of crowdsourcing participants redeemed their coffee voucher within the first ten days; this percentage was more than twice higher for control participants (21%). Given students’ need for coffee on campus, and the good deal of the voucher, the focal effect continuously decreased over time resulting in similar overall redemption behavior after a 30-day period. Yet, crowdsourcing participants took almost twice longer ($M = 18.87$ days) to redeem their coupons compared to control participants ($M = 10.53$ days). This effect was statistically significant. Thus, there is a sharp and immediate drop in brand engagement following the feedback that one’s idea was not among the winners.



Source: © Adobe Stock.

Study 2a conceptually replicates the backfiring effect of participating in crowdsourcing in the context of new product idea generation for a university merchandise store. In particular, the results demonstrate that the bitterness of losing manifests also in other key marketing measures such as future purchase and word-of-mouth intentions.

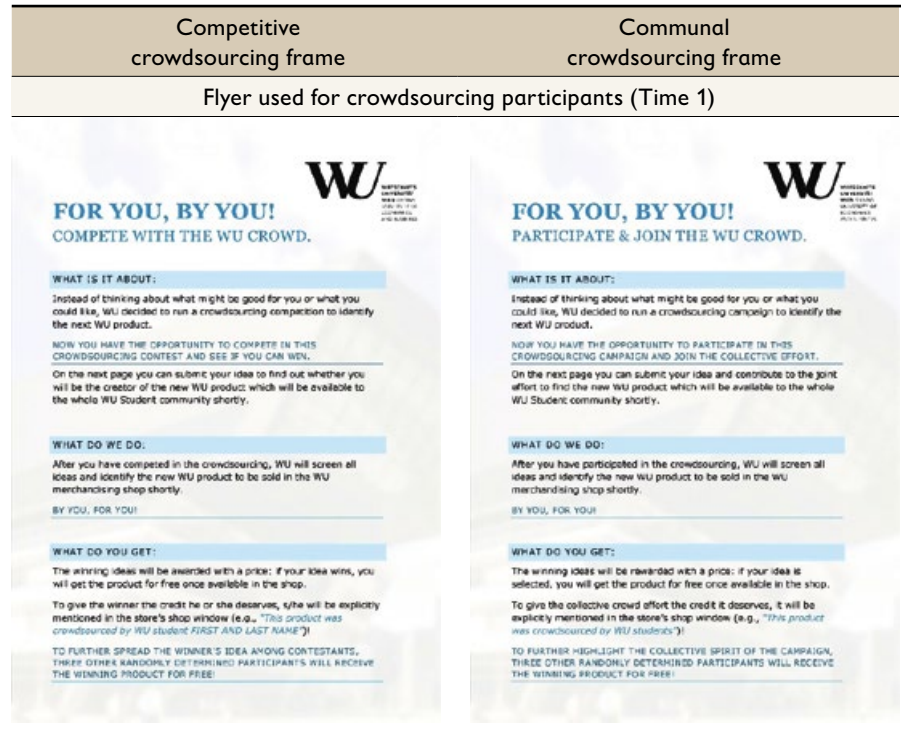
What can managers do about this negative effect?

Credit to All

With the crowd as the key element of crowdsourcing, managers typically need to engage a high number of customers within the community to get a few high-quality ideas (Fombelle et al., 2016). Crowdsourcing initiatives are typically framed as individualistic competitions or contests where the winner competes against all others and takes all. Such framing implies that all others are losers, while in fact they are contributors who as a joint community brought about the final outcome. With this in mind, we propose that it might be better to frame (= phrase) a crowdsourcing initiative as a joint communal effort rather than a competition as this may strengthen consumers' feeling of having contributed to the final outcome even if factually the winning idea was submitted by someone else (see figure 1 for a visualization of the competitive vs. communal crowdsourcing frame employed in study 2a).

Empirical evidence indeed shows that compared to crowdsourcing participants exposed to a typical competitive framing, participants in a communal framing condition scored significantly higher on future purchase and word-of-mouth intention. This effect was obtained across two different crowdsourcing settings (studies 2a and 2b). Interestingly, we found no interaction between the focal framing and the participation factor (but instead two main

Figure 1: Sample Study Design Materials (Study 2a)



effects; study 2a). This suggests that the communal framing also helped to lift observing customers' engagement (and not only the post-campaign engagement of crowdsourcing participants). While this finding resonates with prior research on

customers who merely observe crowdsourcing efforts of brands (Dahl et al., 2015), future research might dig deeper into the processes underlying this interesting pattern of effects.

Moreover, study 3, a difference-in-differences field experiment utilizing loyalty card data obtained from a Japanese convenience store chain, demonstrated that after learning about the outcome, participants in the communal (vs. control) condition exhibited significantly higher aggregated spendings within the first 3 days (+8.34%), 7 days (+5.41%) and even 14 days (+4.53%). Similarly to study 1, the effect is attenuated over a longer time period. This again is likely due to the specific study set-up: leading market position of the focal brand (20% market share), initially high customer loyalty, habitual purchasing behavior, and economically incentivized study participation.

Main Propositions

- 1 Crowdsourcing might have a backfiring effect among crowdsourcing participants.
- 2 Not seeing one's idea win might negatively affect customers' subsequent brand engagement, with potential implications for sales.
- 3 The way crowdsourcing is framed might matter in this regard.

Winner Announcement (Time 2)

Here is the result of the crowdsourcing competition: The product that will be produced and available at WU store soon.

LIBRARY SEE-THROUGH BACKPACK
By contest winners [redacted]
A stylish see-through backpack made from extra-strong plastic that can hold all the knowledge those heavy books can give!
This comfortable backpack will relieve the stress from your shoulders and make carrying the knowledge light and easy. Provided in 3 different color tunings, tastefully designed, with multiple pockets for all your things, this transparent backpack will make your student life stylish and efficient.
NO THINGS LEFT BEHIND: You Can Take It With You To The Library!

Here is the result of the crowdsourcing campaign: The product that will be produced and available at WU store soon.

LIBRARY SEE-THROUGH BACKPACK
Crowdsourced by WU Students
A stylish see-through backpack made from extra-strong plastic that can hold all the knowledge those heavy books can give!
This comfortable backpack will relieve the stress from your shoulders and make carrying the knowledge light and easy. Provided in 3 different color tunings, tastefully designed, with multiple pockets for all your things, this transparent backpack will make your student life stylish and efficient.
NO THINGS LEFT BEHIND: You Can Take It With You To The Library!

All conditions

Thank you note (Time 2)

The WU store thanks you for your help and feedback in the course of this study.

Why don't you check out the store at some point?
Stay in touch and have a nice day!

Resulting product (approx. 3 months after data collection)



Source: Karpukhina et al. 2022.

The Best of Both Worlds

There was a concern that the communal framing intervention may interfere with the benefits of crowdsourcing, namely, consumers' eagerness to participate and the resulting quality of their submissions. A thorough investigation of this possibility (studies 2a and 2b) demonstrated that the quality of the ideas per se and participants' efforts did not differ across the framing conditions. Thus, framing a given crowdsourcing initiative as a communal effort (rather than a competition) does not have any negative impact on idea quality.

Discussion

Prior research has predominantly focused on the positive effects of crowdsourcing as an effective means to innovate (Kristensson et al., 2004;

There are two
sides to every coin,
and there is a
downside to crowd-
sourcing, too.

Magnusson et al., 2003; Nishikawa et al., 2013; Poetz & Schreier, 2012) and a powerful marketing tool (Dahl et al., 2015; Hoyer et al., 2010; Liu & Gal, 2011; Nishikawa et al., 2017; Paharia & Swaminathan, 2019). Yet, there are two sides to every coin, and there is a downside to crowdsourcing, too. In particular, our findings demonstrate that consumers who actively participate in crowdsourcing and lose – that is, the overwhelming majority of all participants – temporarily disengage from the brand, reflected in slower coupon redemption (study 1) and lower purchase intent and

desire to engage in word-of-mouth (studies 2a and 2b).

Theoretically, the best way to keep all the participating customers happy is to create a setting where everyone is a winner or, at least, the number of winners is maximized. While seemingly unrealistic, this could be possible in online contexts where the cost of “producing” a winning idea is very small. For example, IKEA and Gatwick Airport invited their customers to use Instagram to post brand-related visual content (e.g., home interior, terminal view). The content was then reposted on the brand's official Instagram page quoting the creator. Our own exploratory studies on this topic show that such treatments have a significant positive effect on brand-related marketing measures. That is, making customers winners in the course of crowdsourcing might boost their subsequent brand engagement.

Nonetheless, even in contexts where only one or a few winners are feasible, the overwhelming majority of contributors do not have to feel like losers. Firms can give the credit where credit is due and acknowledge every customer's contribution. This approach is inexpensive and can be adopted from the very beginning: by the framing of the focal crowdsourcing call. As such, reframing crowdsourcing from a competitive contest to a communal effort was shown to increase participants' intention to patronize the brand (studies 2a and 2b) and led to higher actual spending with the hosting brand shortly after learning about the campaign's outcome (study 3).

A limitation of the experiments presented here is that we did not capture the effects' underlying psychological process. What is driving the negative participation effect and the positive effect of the communal framing intervention (among participants and observers)? Future research might look into this matter and thereby provide further actionable advice for crowdsourcing managers. Our own exploratory follow-up studies on this topic revealed that the communal framing increases the participants' feeling of contribution. In other words, despite the factually identical outcome of the crowdsourcing campaign, the non-winning participants no longer feel like losers, but rather as contributors.

Future research might also look into potential nuances within competitive crowdsourcing. How does the specific feedback provided to losers affect results and to what extent does the number and type of winners as well as the underlying selection process (e.g., company executives vs. target customers) matter?

In sum, our work uncovers an unintended negative effect of crowdsourcing. Importantly, this negative effect occurs among highly loyal and involved

customers, namely among those who voluntarily invest their time and effort to support a brand's crowdsourcing initiative. However, the overwhelming majority of these consumers do not win the crowdsourcing contest. The resulting bitterness of losing manifests itself in subsequent disengagement with the brand. To counter this negative effect,

we propose an inexpensive and easy-to-implement strategy that might not only have positive effects among participants but also among observing customers. Specifically, reframing crowdsourcing to stress its communal element – as a call to join efforts of the community instead of entering a contest, to “participate” instead of “compete”.

References

- Blackhart, G. C., Nelson, B. C., Knowles, M. L., & Baumeister, R. F. (2009). Rejection elicits emotional reactions but neither causes immediate distress nor lowers self-esteem: A meta-analytic review of 192 studies on social exclusion. *Personality and Social Psychology Review*, 13(4), 269–309. <https://doi.org/10.1177/1088868309346065>
- Dahl, D. W., Fuchs, C., & Schreier, M. (2015). Why and when consumers prefer products of user-driven firms: A social identification account. *Management Science*, 61(8), 1978–1988. <https://doi.org/10.1287/mnsc.2014.1999>
- DeWall, C. N., & Bushman, B. J. (2011). Social acceptance and rejection: The sweet and the bitter. *Current Directions in Psychological Science*, 20(4), 256–260. <https://doi.org/10.1177/0963721411417545>
- Djelassi, S., & Decoopman, I. (2013). Customers' participation in product development through crowdsourcing: Issues and implications. *Industrial Marketing Management*, 42(5), 683–692. <https://doi.org/10.1016/j.indmarman.2013.05.006>
- Fombelle, P. W., Bone, S. A., & Lemon, K. N. (2016). Responding to the 98%: Face-enhancing strategies for dealing with rejected customer ideas. *Journal of the Academy of Marketing Science*, 44(6), 685–706. <https://doi.org/10.1007/s11747-015-0469-y>
- Franke, N., Keinz, P., & Klausberger, K. (2013). “Does this sound like a fair deal?": Antecedents and consequences of fairness expectations in the individual's decision to participate in firm innovation. *Organization Science*, 24(5), 1495–1516. <https://doi.org/10.1287/orsc.1120.0794>
- Hanine, S., & Steils, N. (2019). Ideation contests: Crowd management and valorization to avoid negative feelings of participants. *Creativity and Innovation Management*, 28(4), 425–435. <https://doi.org/10.1111/caim.12325>
- Harmeling, C. M., Moffett, J. W., Arnold, M. J., & Carlson, B. D. (2017). Toward a theory of customer engagement marketing. *Journal of the Academy of Marketing Science*, 45(3), 312–335. <https://doi.org/10.1007/s11747-016-0509-2>
- Hofstetter, R., Zhang, J. Z., & Herrmann, A. (2018). Successive open innovation contests and incentives: Winner-take-all or multiple prizes? *Journal of Product Innovation Management*, 35(4), 492–517. <https://doi.org/10.1111/jpim.12424>
- Hoyer, W. D., Chandy, R., Dorotic, M., Krafft, M., & Singh, S. S. (2010). Consumer cocreation in new product development. *Journal of Service Research*, 13(3), 283–296. <https://doi.org/doi:10.1177/1094670510375604>
- Karpukhina, T., Schreier, M., Janiszewski, C., & Nishikawa, H. (2022). I didn't win! An overlooked downside of crowdsourcing? Working Paper, June 2022.
- Kristensson, P., Gustafsson, A., & Archer, T. (2004). Harnessing the creative potential among users. *Journal of Product Innovation Management*, 21(1), 4–14. <https://doi.org/10.1111/j.0737-6782.2004.00050.x>
- Liu, W., & Gal, D. (2011). Bringing us together or driving us apart: The effect of soliciting consumer input on consumers' propensity to transact with an organization. *Journal of Consumer Research*, 38(2), 242–259. <https://doi.org/10.1086/658884>
- Magnusson, P. R., Matthing, J., & Kristensson, P. (2003). Managing user involvement in service innovation: Experiments with innovating end users. *Journal of Service Research*, 6(2), 111–124. <https://doi.org/10.1177/1094670503257028>
- Nishikawa, H., Schreier, M., Fuchs, C., & Ogawa, S. (2017). The value of marketing crowdsourced new products as such: Evidence from two randomized field experiments. *Journal of Marketing Research*, 54(4), 525–539. <https://doi.org/10.1509/jmr.15.0244>
- Nishikawa, H., Schreier, M., & Ogawa, S. (2013). User-generated versus designer-generated products: A performance assessment at Muji. *International Journal of Research in Marketing*, 30(2), 160–167. <https://doi.org/10.1016/j.ijresmar.2012.09.002>
- Paharia, N., & Swaminathan, V. (2019). Who is wary of user design? The role of power-distance beliefs in preference for user-designed products. *Journal of Marketing*, 83(3), 91–107. <https://doi.org/10.1177/0022242919830412>
- Piezunka, H., & Dahlander, L. (2019). Idea rejected, tie formed: Organizations' feedback on crowdsourced ideas. *Academy of Management Journal*, 62(2), 503–530. <https://doi.org/10.5465/amj.2016.0703>
- Poetz, M. K., & Schreier, M. (2012). The value of crowdsourcing: Can users really compete with professionals in generating new product ideas? *Journal of Product Innovation Management*, 29(2), 245–256. <https://doi.org/10.1111/j.1540-5885.2011.00893.x>
- Schreier, M., Fuchs, C., & Dahl, D. W. (2012). The innovation effect of user design: Exploring consumers' innovation perceptions of firms selling products designed by users. *Journal of Marketing*, 76(5), 18–32. <https://doi.org/10.1509/jm.10.0462>
- Verhoef, P. C., Reinartz, W. J., & Krafft, M. (2010). Customer engagement as a new perspective in customer management. *Journal of Service Research*, 13(3), 247–252. <https://doi.org/10.1177/1094670510375641>



Können wir Sie als Autorin oder Autor gewinnen?

Die Marketing Review St. Gallen verfolgt das Ziel, den Austausch zwischen Theorie und Praxis zu fördern. Alle Beiträge werden im Rahmen eines Double-Blind-Review-Prozesses anonym von einer Person aus der Wissenschaft und einer Marketingführungskraft begutachtet. Dadurch wollen wir die anwendungsorientierte Qualität der Marketing Review St. Gallen für die Leserschaft sicherstellen. Beiträge können in deutscher oder englischer Sprache eingereicht werden. Können wir auch Sie zu den nachstehenden Themen als Autorin oder Autor gewinnen?

Grundsatzbeiträge

Neben unseren inhaltlichen Themenheften suchen wir auch fortlaufend nach Grundsatzbeiträgen. Voraussetzung für einen solchen Grundsatzbeitrag ist, dass das Thema auf ein breites Interesse stösst und in sich geschlossen behandelt wird. Dabei eignen sich besonders Beiträge mit einem thematischen Fokus auf den Bereichen Marketingstrategie, Verkaufs- oder Markenmanagement.

Falls Sie Interesse an einem Grundsatzartikel in der Marketing Review St. Gallen haben, senden Sie bitte einen kurzen Abstract (max. eine Seite) an susannaelisa.renner@unisg.ch und marketingreview@unisg.ch

Schwerpunktthemen

MRSG 3.2023: Technology-Enabled Customer Experiences

Bitte senden Sie einen Abstract (max. eine Seite) bis zum 14. Dezember 2022 an marketingreview@unisg.ch



Redaktionsleitung

Susanna Renner, M.Sc.

Wissenschaftliche Mitarbeiterin und Doktorandin am Institut für Marketing und Customer Insight an der Universität St. Gallen (HSG)

Illustration: © Studio Nippoldt



Universität St. Gallen

Institut für Marketing und Customer Insight

Weiterbildung für Fach- und Führungskräfte

Machen Sie mit der Weiterbildung in Marketing, Sales oder Kommunikation einen weiteren Karriereschritt.

Bestens gewappnet für Ihre Zukunft

mit einer Weiterbildung am Institut für Marketing und Customer Insight an der Universität St. Gallen (HSG), einer der führenden Wirtschaftsuniversitäten Europas.

Unsere berufsbegleitenden Intensivseminare sowie unsere Programme mit den anerkannten Abschlüssen Diploma of Advanced Studies (DAS) oder Certificate of Advanced Studies (CAS) bieten durch ihren modularen Aufbau höchste Flexibilität neben Ihrem Beruf.



+ 41 71 224 71 70

imc.unisg.ch/weiterbildung

AI-Assisted Searching

Through Crowdsourced
Solution Spaces

In crowdsourcing contests, managers have to process hundreds of potential solutions on different topics and from different perspectives. This is resource-intensive, and the cognitive limits of humans are quickly exceeded. Applying contemporary AI-based language models is a promising way to help structure and explore crowdsourcing solutions.

Julian Wahl, M.Sc., Prof. Dr. Johann Füller, Prof. Dr. Katja Hutter

Hardly anyone engaged in the field of open innovation would deny that it is beneficial to have access to many different ideas in the front-end of new product development processes. But innovation managers that have to deal with the large number of ideas shared in crowdsourcing contests (Afuah & Tucci, 2012; Terwiesch & Xu, 2008) and extricate the potential of the shared suggestions may not always be that enthusiastic. Reading hundreds or even thousands of ideas is likely to lead to high cognitive load levels, negatively affecting decision quality (Blohm et al., 2016; Sweller & Chandler, 1994). Insights into the structure of the crowdsourced solution space (Jeppesen & Lakhani, 2010; von Hippel & von Krogh, 2016) may help to absorb essential information and better solve the broadcasted innovation problem. However, innovation managers tend to lose sight of essential and promising solutions and overlook important patterns in the gathered content. Thus, new approaches are needed to capture the full range of proposed solutions and overcome limited human processing capacities.

Integrating artificial intelligence (AI) into new product development allows for efficient processing of large-scale solution-related information and rethinking entire innovation processes (Füller et al., 2022; Haefner et al., 2021). In this context, applying AI-based language models presents a promising way to analyze large amounts of text. With these models, texts can be transformed into numeric vectors and allocated at specific locations in a high-dimensional space depending on their semantic content. Recently, pre-trained contextual language models that learn the semantic representations through transformer network architectures have revolutionized the field (Wolf et al., 2020). For example, sentence-BERT (SBERT) models (Reimers & Gurevych, 2019) based on Google's popular BERT model (Devlin et al., 2019) are tuned for automatically mapping entire sentences or paragraphs into a semantic space.

While there have been initial efforts to enrich the wisdom of the crowd with AI-based language models (Rhyne & Blohm, 2017), little research has explored how pre-trained contextual models for text representation can be implemented to gain insights into the structure of crowdsourced content and support human decision-making. Thus, in collaboration with Hyvecrowd – a leading German crowdsourcing platform – we explored how SBERT and complementary algorithms can be applied to facilitate AI-assisted searches through crowdsourced solution spaces. Using data from a crowdsourcing contest on future mobility and energy services, we show how AI-assisted searching can support managers to automatically identify clusters of similar ideas giving insights into their popularity, uncover latent topics and important interrelations, or directly spot ideas that meet a specific need or sub-problem. Thereby, it reduces the time and cognitive effort required to analyze the vast amount of submitted ideas.



Julian Wahl, M.Sc.

Research Assistant and PhD Candidate,
University of Innsbruck, Austria
julian.wahl@uibk.ac.at

Prof. Dr. Johann Füller

Professor of Innovation and Entrepreneurship,
University of Innsbruck, Austria and
CEO of HYVE – the innovation company,
Munich, Germany
johann.fueller@uibk.ac.at

Prof. Dr. Katja Hutter

Professor of Innovation and Entrepreneurship,
University of Innsbruck, Austria
katja.hutter@uibk.ac.at

Literature Background

Crowdsourced Solution Spaces

Compared to situations where organizations search for new solutions by themselves, crowdsourcing allows for richer insights, as the various contributors have information on different parts of the entire solution space (Jeppesen & Lakhani, 2010; von Hippel & von Krogh, 2016). Problem-solving literature suggests that the generation of multiple ideas can enable new ways of thinking (Boden, 2004; Ulrich, 1988). Therefore, decision-makers should not limit themselves to analyzing single search paths but rather consider a broad collection of possible solutions to find the right one (Simon, 1996). However, when organizations review crowdsourced idea content, they often focus on filtering out a specific number of winning contributions (Merz, 2018). As a result, a myriad of perspectives – representing the crowd's collective intelligence – is not considered in further decision-making. Yet, insights into that knowledge structure can be helpful to learn from the shared input and explore promising solutions.

Humans quickly reach their cognitive limits when processing many different ideas with multiple interacting components. If too many ideas are delivered at a particular time, the incoming information cannot be sufficiently organized and recognized according to its thematic content (Hiltz & Turoff, 1985; Sweller & Chandler, 1994). Thus, innovation managers engaged in crowdsourcing contests often struggle to develop a clear picture of the gathered knowledge. Although human experts can draw on a high level of domain-specific knowledge and experience, they

Management Summary

This study explores how AI-based language models can complement the search through large numbers of solutions shared in a crowdsourcing contest. It outlines four search applications that automatically aggregate semantically similar ideas into clusters to explore characteristic agglomerations in the solution space, unveil underlying themes and interrelations to build a holistic understanding of the solution space, and identify solutions that address a pressing need or sub-problem within a few seconds without any noteworthy costs or cognitive effort. Innovation managers are encouraged to implement AI-assisted searching to improve the exploration of solution spaces in crowdsourcing contests and beyond.

need to find ways to overcome their limited processing capacities and develop a holistic understanding of the vast space of possible solutions to identify valuable crowdsourced contributions.

AI-based Idea Representations

Recently, insights gained from analyzing large amounts of text with the help of language models for semantic text representation have gained traction in innovation and crowdsourcing research (Antons et al., 2020; Rhyn & Blohm, 2017). Since ideas shared in contests are described in text, processing ideas with language models powered by deep learning algorithms is predestined to uncover semantic similarities.

In the last decade, the application of deep learning algorithms to generate AI-based text representations has pushed the field of natural language understanding forward. Popular models like Word2Vec (Mikolov et al., 2013) or GloVe (Pennington et al., 2014) are learning semantic embeddings for words depending on how frequently they appear close to each other in a text corpus. Consequently, semantically similar words obtain similar vector values in the embedding space. Some models map entire sentences or short documents in an semantic space (Kusner et al., 2015; Le and Mikolov, 2014). For example, in the models the sentence “We published an article on open innovation in the Marketing Review St. Gallen” will have a similar semantic vector representation as “We wrote a paper on crowdsourcing practices for the Harvard Business Review.” However, distributional models for text representation like Word2vec or GloVe ignore the different meanings of words in different contexts. For example, a processed word like “paper” may encode different information

depending on whether it is used by an academic researcher or by an industry expert on packaging solutions.

Unlike distributional word representation models in which each word of a vocabulary corresponds to a single word embedding, contextual models consider the environment of each word occurrence. Thus, the value of the word vector varies depending on the sentence or paragraph in which the word is used. The capturing of the context is enabled by powerful transformer architectures, which can generate universal representations of an unprecedented amount of text data (Wolf et al., 2020). Contextual models such as BERT (Devlin et al., 2019) or GPT-3 (Brown et al., 2020) are pre-trained on large language datasets scraped from web corpora, such as Wikipedia, Gigaword, Google News, and many more. Pre-trained models using the SBERT framework (Reimers & Gurevych, 2019) deliver state-of-the-art embeddings for entire sentences or short documents.

The benefits of applying modern AI-based language models to automatically create similarity mappings of numerous crowdsourced ideas are apparent, as they can help innovation managers structure solution-related content automatically and extend their information processing capacity. However, the representation of potential solutions based on their semantic content is of limited value without search applications that support them in exploring the emerging solution space.

Research Context and Data

In collaboration with the leading German crowdsourcing platform Hyvecrowd, we experimented on how AI-based representations of hundreds of crowdsourced solutions implemented in practical applications can enrich search practice. For this purpose, we used data from an innovation contest, in which the car manufacturer BMW reached out to the crowd to identify mobility and energy services that will potentially be established by 2030. More specifically, BMW wanted to know which services are changing the mobility ecosystem, which startups satisfy emerging customer needs, and which developments are in the early stages and have the potential to become established within the next ten years. With the chance to win prizes of € 3,000 in total, 151 participants generated 289 potential solutions.

To better process the heterogeneous perspectives shared by the crowd and navigate through the large amount of ideas, we applied state-of-the-art SBERT models from the Python package Sentence Transformers (Reimers, 2021) to automatically generate a similarity allocation of the 289 idea vectors. In several experiments, we explored how this allocation can support decision-makers in organizing the wisdom of the crowd more efficiently and effectively. Together with practical experts from

the team of Hyvecrowd and backed by academic concepts on solution search, we came up with four different approaches to navigate through crowdsourced knowledge that can be used sequentially: 1) exploring density structures; 2) determining topics and interrelations; 3) combining density structures and topics; 4) matching ideas with specific needs.

Search Applications

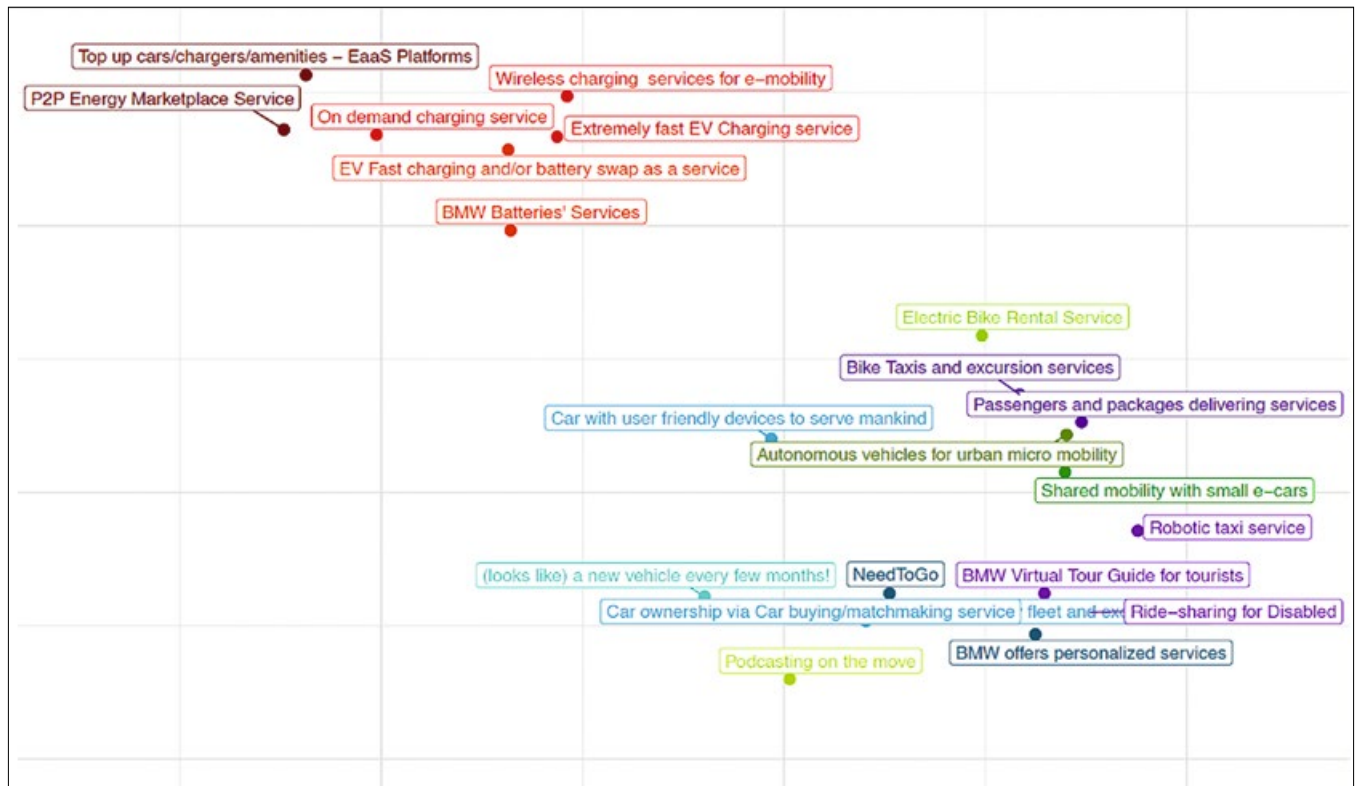
Exploring Density Structures

We assume that in exploration processes insights into the structure of the solutions space (Newell & Simon, 1972) facilitated by an automated allocation of ideas according to their semantic meaning can significantly support the search for solutions. Structuring the crowdsourced solution space by clustering the embedded idea vectors allows for a first understanding of

the characteristics of the shared set of solutions and facilitates processing the numerous possible solutions. Innovation managers often start their search by simply exploring exciting ideas. Using density-based clustering, managers can learn whether a proposed solution is part of a popular or unique neighborhood. For example, dense agglomerations might create an unbiased structure indicative of ideas addressing a relevant problem or need (Kornish & Ulrich, 2011).

In a hierarchical Ward clustering analysis (Scikit-learn, 2022), we uncovered 176 cluster groups that range from one to six solutions. Another clustering model with higher similarity threshold levels yielded 76 groups and revealed additional insights at broader levels of the crowdsourced solution space. Thus, two solution landscape structures on different levels of granularity emerged (figure 1). While the actual idea vector was generated based on a longer text, the subtitles validate the face validity of the generated similarity structure. For

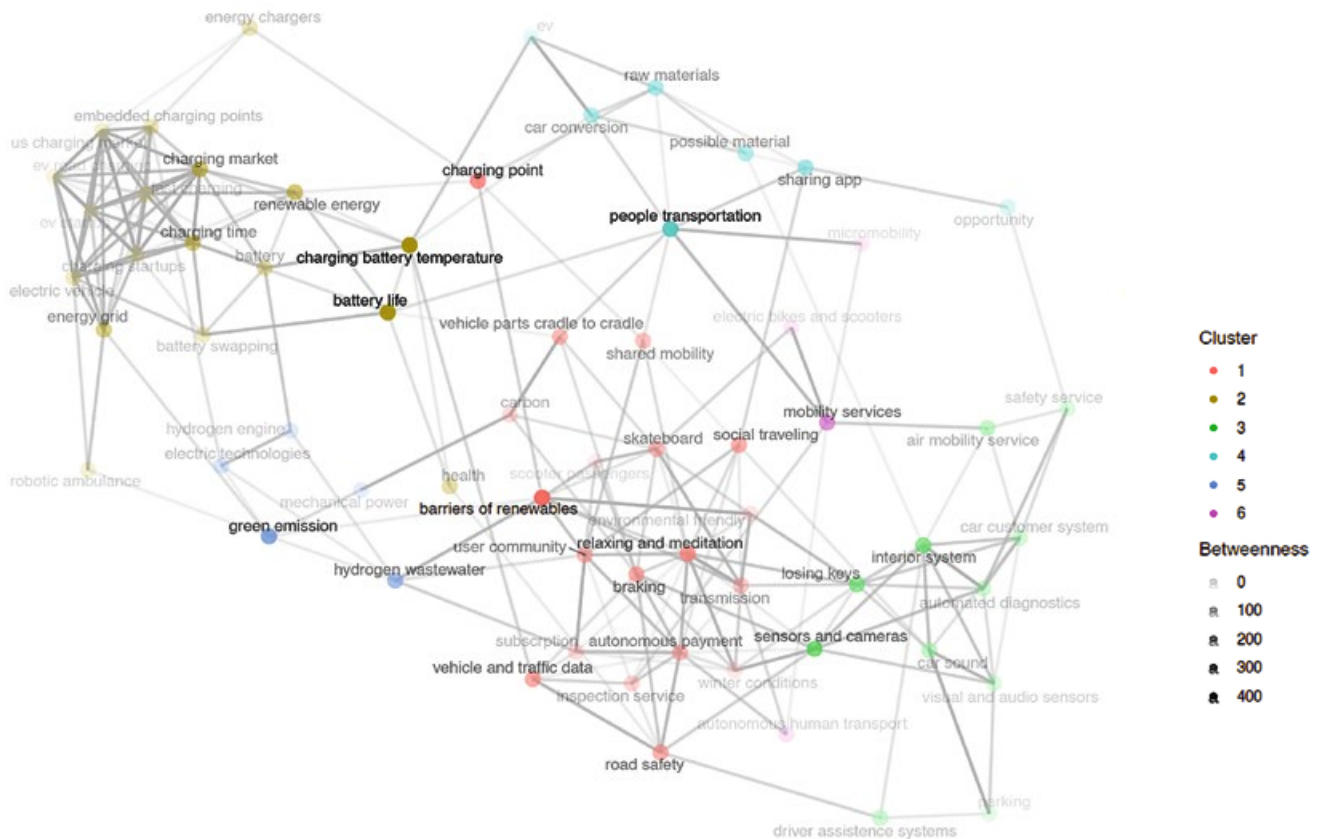
Figure 1: Section of Clustered Solution Spaces on Two Different Granularity Levels



- a Charging: Battery a Micro mobility: Autonomous a Micro mobility: Shared micro-cars a Personalized services: Outsourcing
- a Charging: New services a Micro mobility: Electric bikes a Personalized services a Taxi: Passengers
- a Charging: Platforms a Micro mobility: Podcasts a Personalized services: New car a Taxi: Ride offerings

Source: Own illustration.

Figure 2: Topic Network



The network uses the correlations between the topic loadings of the crowdsourced service descriptions and only displays correlations above a threshold value of the 90th percentile. Source: Own illustration.

example, the red cluster in figure 1 involves solutions dealing with electric vehicle (EV) charging. This cluster can be divided into three further groups covering batteries, new charging services, and platforms. To obtain the representation, the 768-dimensional SBERT vectors of each service description were reduced to two dimensions using the UMAP technique (McInnes et al., 2018). This allows for more nuanced insights into the semantic density structure of the solution gathered in the crowdsourcing contest.

Determining Topics and Interrelations

Besides semantic clusters, innovation managers engaged in crowdsourcing contests may also be interested in common themes independent of density structures in the crowdsourced solution space. Topic modeling based on SBERT embeddings allows the identification of interrelations between ideas that

share similar topics but might approach them from different perspectives (Bianchi et al., 2021). In the cluster exploration outlined above, the more latent interrelations might remain undetected. We ran a contextual topic model analysis over all 232 crowdsourced ideas using the Python package Contextualized Topic Models (Bianchi et al., 2020). For the analyzed data, a model with 70 topics turned out as most effective for revealing coherent, diverse, and fine-grained regularities among the shared mobility and energy service descriptions. Insights into the regularities across contributed solutions and their components may further transform the overall understanding of the innovation problem. We manually labeled the solutions by focusing on the topic words with the highest scores and removed six noisy topics with incoherent and meaningless data.

In the network shown in figure 2, the topics are linked based on their common occurrence in the crowdsourced service descriptions. The different colors of the nodes in the network represent

different topic communities, the different transparencies of the nodes indicate their importance, with the most opaque ones highlighting the connector nodes in the network. The thickness of the connecting lines corresponds to the strength of the correlation between the topics. For example, in the top left corner of the figure, the light brown topics deal with charging and electricity services around the car of the future and indicate exceptionally high correlations. This topic community further involves the two important topics of charging battery temperature and battery life that connect it to other communities. Innovation managers can learn from the unveiled patterns and understand the solution space, including underlying sub-problems, important interrelations, and potential components of solutions. In a further step, nuanced and holistic representations of possible ways to solve the crowdsourced problem may become more transparent. For example, topic combinations may serve as a template that stimulates the search for new solutions beyond the ones created in the crowdsourcing contest.

Combining Density Structures and Topics

When one has information about the semantic mapping, density structures, and underlying themes of the crowdsourced solution space, combining this information into a single search application makes sense. Figure 3 illustrates an interactive visualization of the crowdsourced solution space in three-dimensional space. This allows to roam through all 289 service

descriptions and gain information on their content, popularity in the contest, i.e., likes and comments, and the density in the semantic neighborhood, i.e., the number of contributions in the fine and broad clusters. While dense clusters indicate popular solutions in the neighborhood, smaller clusters may reveal unique posts that indicate weak signals, e.g., in the case of a high number of views, comments, or likes. Using this information, decision-makers can focus on selected areas of the solution space or read through these potential solutions in more detail.

Furthermore, by connecting the most characteristic topics of all service descriptions, one can filter for overarching topics of interest and focus one's search on specific parts of the crowdsourced solution space, starting from a topic of interest. For example, the service description "Autonomous vehicles for autonomous urban micro mobility" depicted in the lower graph of figure 3 strongly represents the topic of autonomous human transport. However, compared to the service description "Powerbank – mobile charging on the road" shown in the upper graph, it appears less attractive, with lower values in comments and likes, and a fine and broad cluster size.

Matching Ideas with Specific Needs

Innovation managers are often aware of specific problems or are searching for ideas addressing specific issues. In this case, they may search through manually annotated idea tags

Main Propositions

- 1 Managers require new approaches to overcome cognitive limitations in processing large-scale text information.
- 2 The automatic clustering of semantically similar solutions creates an unbiased structure to identify popular or unique contributions.
- 3 Topic modeling helps to better understand underlying components in crowdsourced solution spaces.
- 4 Instead of keywords or themes, customized need queries can be used to identify relevant solutions directly.
- 5 Though many tasks can be automated, innovation managers' domain knowledge and contextualization remain essential.

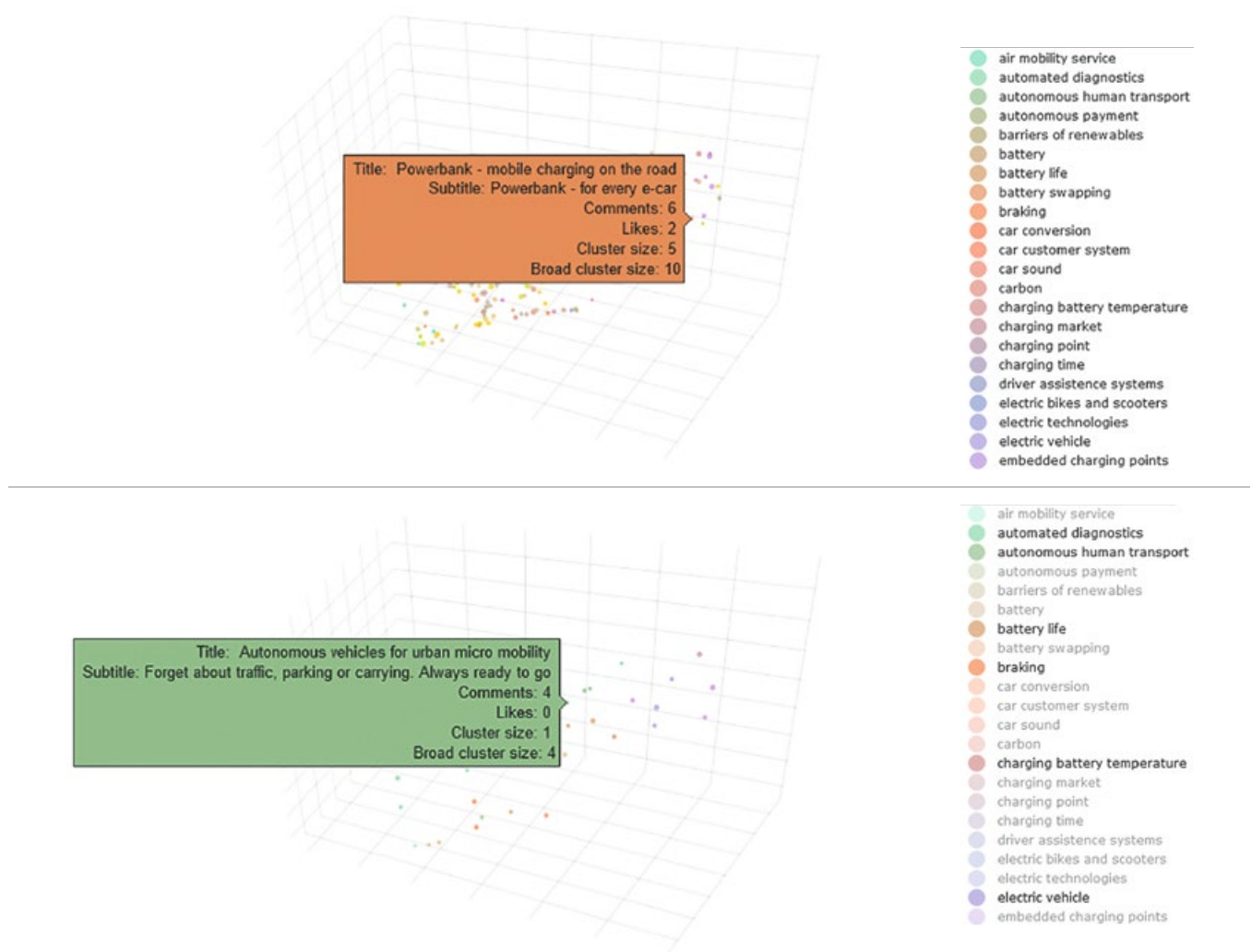
Lessons Learned

- 1 The different search applications facilitated by AI-based language models should be combined into scalable tools and integrated with idea management and crowdsourcing platforms.
- 2 Innovation managers are encouraged to let AI handle any tasks that involve the processing of large amounts of text to save resources for high-value tasks.
- 3 Before implementing AI-assisted searching, innovation managers should carefully validate the benefits of previous practices and clarify where experts' intuition and experience are required.
- 4 AI-savvy innovation managers should closely follow the rapid advancements in the automated analysis of text, images, and videos and constantly explore new options to enhance AI-assisted solution searches.

or filter for related keywords in the crowdsourced idea titles to limit the amount of text to be investigated. However, idea titles or annotated idea tags only capture a limited part of the semantic content. For example, keywords that are not part of a pre-defined search set cannot be considered, and annotated tags and themes are likely too broad to engage in nuanced fine-grained searches. Due to their ability to capture semantic meaning and the context of language, SBERT models are promising tools to search for solutions that address pre-defined needs independent of certain keyword expressions, tags or themes by comparing the semantic distances between text vectors describing needs and solutions.

In the background information of the crowdsourcing contest, the hosting car manufacturer explicitly mentioned this issue. In the original contest, participants annotated their contributed ideas with pre-defined terms but could only select between the extremely broad trend themes of “mobility services” and “energy services”. In another step, Hyvecrowd and BMW experts invested considerable resources to categorize the contributed ideas into a few somewhat more specific themes, e.g., “maintenance service”, “charging service” or “human-machine interaction”. As these annotated themes still cover quite broad need areas, such a procedure is useless in a deliberate search for specific needs. In the analyzed contest briefing, the hosts men-

Figure 3: Exemplified Exploration of 3D Crowdsourced Solution Spaces



Source: Own illustration.

tioned needs like “How can we integrate cars into overarching mobility concepts?” or “Which data-based services can support the driver, fleet manager or government?”. Table 1 displays the results from two exemplary searches using these two need queries to automatically identify the ten crowdsourced ideas with the least semantic distance to them. Though the calculations are based on the full-text descriptions, a first evaluation of the results’ titles and subtitles confirms the search approach’s applicability and content validity. Almost all top-ten closest solutions provide a valid answer to the stated queries. Only two of the 20 reported outputs (listed in italics) do not provide useful answers. For example, the idea of seeing a BMW as a home away from home is not a solution for integrated mobility concepts, and the application of new technologies for seamless car rental may only indirectly be related to data-based services.

Discussion

Usually, managers have to read through every idea submission to explore new and relevant ideas, break down idea content into the underlying components and identify solutions that match their needs. Our research outlines four different AI-based approaches to navigate the solution-related input shared in crowdsourcing contests. The proofs-of-concept described in this article illustrate the potential of AI-based language models and related algorithms to facilitate new ways of organizing the wisdom of crowds more efficiently and effectively. Previous research has already outlined how AI transforms innovation practices and which affordances emerge from AI-based innovation management (Füller et al., 2022; Haefner et al., 2021). In AI-assisted searches, large crowdsourced solution spaces can be structured in just a few seconds without any noteworthy costs or cognitive efforts. While the exploration of dense agglomerations reveals unbiased structures that might indicate solutions that address a relevant problem or need, smaller clusters can help find unique contributions (Kornish & Ulrich, 2011). Topic modeling supports gaining nuanced insights into latent themes and interrelations across all crowdsourced contributions and facilitates a holistic understanding of possible ways to solve the problem presented to the crowd. In addition, managers can focus on specific needs and directly identify solutions to address them, and even combine the different search applications one after the other.

While the proposed AI-based approaches examined in this study can complement the skills of human decision-makers by automating the structuring of idea content, the automation of entire innovation processes remains a thing of the future. In the investigated applications, human skills were important in conceptualizing approaches that provide value in practice, selecting suitable language models and parameters, and drawing conclusions from the generated output. While we manually labeled the

Table 1: Top-10 Closest Crowdsourced Solutions of Need–Solution Matching (original wording)

Need query: “How can we integrate cars into overarching mobility concepts?”
1. Opinionated #SoMe interactions, Social Audio ... – Socialize while on the go! Building on apps and internet connectivity, head up displays, etc.
2. Shared mobility with small e-cars – getting where you want with your kids or friends in no time has never been that easy!
3. The future is van-tastic – electric vans are conquering villages and towns.
4. Service for product – carpooling, car sharing or other services.
5. Distribution of condition(s) sensitive medication – collect your critical medication while you charge up!
6. Mobility flat – vehicle tariffs as required.
7. First-mile and last-mile mobility that stows easy and fits and recharges in your vehicle.
8. Localelectric (local + electric) mobility services – providing local mobility services via electric vehicles.
9. <i>Lounge BMW’s Services – electric car with more space and comfort. The EVs will be designed to be a home away from home.</i>
10. BMW and the all-in-one solution – how to efficiently combine all sustainable trends? Configure-to-order process is the future!
Need query: “Which data-based services can support the driver, fleet manager or government?”
1. Data management from connected mobility – with vehicles acquiring more data from their drivers, managing and using this data is crucial to offer new services.
2. Value from V2I, V2X and vehicle sensor data – vehicular or fleet sensing of surroundings and V2I, V2X, V2V touchpoints/history = trove of situational/environmental big data
3. Sharing carsharing cars with the police App-open – keyless opening tech is developed into an app environment of additional services.
4. Full system diagnostic scanner AI-Transport – damage detection for various service scenarios and vehicle diagnostics.
5. EV mileage optimization service – EV vehicle, trip and charging management and optimization service to serve and help customers.
6. Remotely operated/controlled EV – we all love remote controls, what about remotely operated/controlled EV?
7. Smart vehicles with intelligence on board – a customizable vehicle assistance system helps to avoid personal and property damage – real(-time) assistance and sustainability
8. Vehicle repair that is itself mobile – comes to you / your driveway / parking spot.
9. <i>Premium shared mobility solutions – using technology to enable seamless car rental.</i>
10. Geo targeted ads service – the digital billboards on the road syncs up their ads to what is relevant to the moving customers on wheels.

Source: Own illustration.

clusters and topics, future research is encouraged to experiment with language models for text generation (Ouyang et al., 2022) to automatically assign titles to clusters and topics based on the semantic content of the aggregated solutions or topic words.

Furthermore, in-depth knowledge about the organizational context, the market situation, or competitive scenarios appears indispensable to find the best overall solutions, at least for now. However, the days when experts relied solely on their cognitive abilities to make sense of vast amounts of crowdsourced knowledge to develop a thorough understanding of a problem and find the best solutions seem to be over. Innovation managers are encouraged to implement AI-assisted search approaches to improve the exploration of large amounts of ideas in crowdsourcing contests and beyond. Thus, they can reduce the cognitive demand associated with perusing every idea and find similar structures and interrelations that might have remained undetected with traditional approaches. In doing so, they should constantly monitor the advancements in existing AI-based language models accessible via open-source libraries on Python and ensure capabilities to implement them into their processes, either through customized tools or whole systems embedded within crowdsourcing or idea management platforms. ■

References

- Afuah, A., & Tucci, C. L. (2012). Crowdsourcing as a solution to distant search. *Academy of Management Review*, 37(3), 355–375. <https://doi.org/10.5465/amr.2010.0146>
- Antons, D., Grünwald, E., Cichy, P., & Salge, T. O. (2020). The application of text mining methods in innovation research: Current state, evolution patterns, and development priorities. *R&D Management*, 50(3), 329–351. <https://doi.org/10.1111/radm.12408>
- Bianchi, F., Terragni, S., & Hovy, D. (2020). Python package “contextualized topic models.” <https://contextualized-topic-models.readthedocs.io/en/latest/>
- Bianchi, F., Terragni, S., & Hovy, D. (2021). Pre-training is a hot topic: Contextualized document embeddings improve topic coherence. *Proceedings of the ACL-IJCNLP 2021*, Vol. 2, pp. 759–766. <https://doi.org/10.18653/v1/2021.acl-short.96>
- Blohm, I., Riedl, C., Füller, J., & Leimeister, J. M. (2016). Rate or trade? Identifying winning ideas in open idea sourcing. *Information Systems Research*, 27(1), 27–48. <https://doi.org/10.1287/isre.2015.0605>
- Boden, M. A. (2004). *The creative mind: Myths and mechanisms* (2nd ed.). Routledge.
- Brown, T. B., Mann, B., Ryder, N., Subbiah, M., Kaplan, J., Dhariwal, P., Neelakantan, A., Shyam, P., Sastry, G., Askell, A., Agarwal, S., Herbert-Voss, A., Krueger, G., Henighan, T., Child, R., Ramesh, A., Ziegler, D., Wu, J., Winter, C., Hesse, C., Chen, M., Sigler, E., Litwin, M., Gray, S., Chess, B., Clark, J., Berner, C., McCandlish, S., Radford, A., Sutskever, I., & Amodei, D. (2020). Language models are few-shot learners. <https://proceedings.neurips.cc/paper/2020/file/1457c0d6bfc4967418fb8ac142f64a-Paper.pdf>
- Devlin, J., Chang, M. W., Lee, K., & Toutanova, K. (2019). BERT: Pre-training of deep bidirectional transformers for language understanding. *Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies*, pp. 4171–4186.
- Füller, J., Hutter, K., Wahl, J., Bilgram, V., & Tekic, Z. (2022). How AI revolutionizes innovation management – Perceptions and implementation preferences of AI-based innovators. *Technological Forecasting and Social Change*, 178. <https://doi.org/10.1016/j.techfore.2022.121598>
- Haefner, N., Wincnet, J., Parida, V., & Gassmann, O. (2021). Artificial intelligence and innovation management: A review, framework, and research agenda. *Technological Forecasting and Social Change*, 162. <https://doi.org/10.1016/j.techfore.2020.120392>
- Hiltz, S. R., & Turoff, M. (1985). Structuring computer-mediated communication systems to avoid information overload. *Communications of the ACM*, 28(7), 680–689. <https://dl.acm.org/doi/10.1145/3894.3895>
- Jeppesen, L. B., & Lakhani, K. R. (2010). Marginality and problem-solving effectiveness in broadcast search. *Organization Science*, 21(5), 1016–1033. <https://doi.org/10.1287/orsc.1090.0491>
- Kornish, L. J., & Ulrich, K. T. (2011). Opportunity spaces in innovation: Empirical analysis of large samples of ideas. *Management Science*, 57(1), 107–128. <https://doi.org/10.1287/mnsc.1100.1247>
- Kusner, M. J., Sun, Y., Kolkin, N. I., & Weinberger, K. Q. (2015). From word embeddings to document distances. *Proceedings of the 32nd International Conference on Machine Learning*, PMLR 37, 957–966. <https://proceedings.mlr.press/v37/kusnerb15.html>
- Le, Q., & Mikolov, T. (2014). Distributed representations of sentences and documents. *Proceedings of the 31st International Conference on Machine Learning*, PMLR 32(2), 1188–1196. <https://proceedings.mlr.press/v32/le14.html>
- McInnes, L., Healy, J., & Melville, J. (2018). UMAP: Uniform manifold approximation and projection for dimension reduction. *Arxiv*. <http://arxiv.org/abs/1802.03426>
- Merz, A. B. (2018). Mechanisms to select ideas in crowdsourced innovation contests – a systematic literature review and research agenda. *Proceedings of the 26th European Conference on Information Systems*. https://aisel.aisnet.org/ecis2018_rp/68/
- Mikolov, T., Chen, K., Corrado, G., & Dean, J. (2013). Efficient estimation of word representations in vector space. *1st International Conference on Learning Representations, Workshop Track Proceedings*, pp. 1–12. <https://arxiv.org/abs/1301.3781>
- Newell, A., & Simon, H. A. (1972). *Human problem solving*. Prentice-Hall.
- Ouyang, L., Wu, J., Jiang, X., Almeida, D., Wainwright, C. L., Mishkin, P., Sandhini, Z., Katarina, A., Alex, S., John, R., Jacob, S., Fraser, K., Miller, L., Simens, M., Askell, A., Welinder, P., Christiano, P., Leike, J., & Lowe, R. (2022). Training language models to follow instructions with human feedback. *OpenAI*. https://cdn.openai.com/papers/Training_language_models_to_follow_instructions_with_human_feedback.pdf
- Pennington, J., Socher, R., & Manning, C. D. (2014). GloVe: Global vectors for word representation. *Conference on Empirical Methods in Natural Language Processing*, pp. 1532–1543. <https://doi.org/10.3115/v1/d14-1162>
- Reimers, N. (2021). Python package “SentenceTransformers.” SBERT. <https://www.sbert.net/docs/>
- Reimers, N., & Gurevych, I. (2019). Sentence-BERT: Sentence embeddings using Siamese BERT-Networks. *Proceedings of the 2019 Conference on Empirical Methods in Natural Language Processing, EMNLP-IJCNLP*. <https://aclanthology.org/D19-1410/>
- Rhyn, M., & Blohm, I. (2017). Combining collective and artificial intelligence: Towards a design theory for decision support in crowdsourcing. *Proceedings of the 25th European Conference on Information Systems*, 2656–2666. https://www.alexandria.unisg.ch/252288/1/JML_660.pdf
- Scikit-learn. (2022). Hierarchical clustering. <https://scikit-learn.org/stable/modules/clustering.html#hierarchical-clustering>
- Simon, H. A. (1996). *The Sciences of the artificial* (3rd ed.). MIT Press.
- Sweller, J., & Chandler, P. (1994). Why some material is difficult to learn. *Cognition and Instruction*, 12(3), 185–233. https://doi.org/10.1207/s1532690xci1203_1
- Terwiesch, C., & Xu, Y. (2008). Innovation contests, open innovation, and multiagent problem solving. *Management Science*, 54(9), 1529–1543. <https://doi.org/10.1287/mnsc.1080.0884>
- Ulrich, K. T. (1988). *Computation and pre-parametric design*. Technical Report 1043. MIT Artificial Intelligence Laboratory. <http://hdl.handle.net/1721.1/6845>
- von Hippel, E., & von Krogh, G. (2016). Identifying viable “need-solution pairs”: Problem solving without problem formulation. *Organization Science*, 27(1), 207–221. <https://doi.org/10.1287/orsc.2015.1023>
- Wolf, T., Debut, L., Sanh, V., Chaumond, J., Delangue, C., Moi, A., Cistac, P., Rault, T., Louf, R., Funtowicz, M., Davison, J., Shleifer, S., von Platen, P., Ma, C., Jernite, J., Plu, J., Xu, C., Le Scao, T., Gugger, S., Drame, M., Lhoest, Q., & Rush, A. (2020). Transformers: State-of-the-art natural language processing. *Proceedings of the 2020 Conference on Empirical Methods in Natural Language Processing*, 38–45. <https://doi.org/10.18653/v1/2020.emnlp-demos.6>

Rezension

Warum und wann präferieren Konsumentinnen und Konsumenten Firmen, die sich auf Crowdsourcing und Open Innovation stützen? Diese Frage beantwortet der Management-Science-Artikel von Darren W. Dahl, Christoph Fuchs und Martin Schreier aus 2015. Das Paper leistet einen wertvollen und wichtigen Beitrag zur wissenschaftlichen Literatur im Bereich Crowdsourcing und Open Innovation. Dabei zeigen sie nicht nur, dass das Einbeziehen von Konsumierenden immer wichtiger wird, sondern beleuchten die Mechanismen hinter dem Phänomen und erklären, wie Unternehmen beim Einbinden von ihrer Kundschaft in den Innovationsprozess vorgehen sollten.

Die Autoren zeigen mit der Social-Identity-Theory auf, warum Konsumentinnen und Konsumenten Unternehmen präferieren, die ihre Kundschaft in den Innovationsprozess einbinden. Nach dieser Theorie bilden wir unsere Identität nicht nur nach eigenen Wertvorstellungen und Leistungen, sondern auch in Relation zu den Leistungen von Mitmenschen, sofern wir uns mit diesen identifizieren können. Gewinnt beispielsweise eine Frau den Nobelpreis, aktiviert dies eine weibliche Selbstidentität und Frauen können den Erfolg nun auf sich selbst projizieren.

Analog zu diesem Beispiel fühlen sich Kundinnen und Kunden eingebundener in das Unternehmen, wenn andere Konsumentinnen und Konsumenten am Innovationsprozess des Unternehmens beteiligt sind. Weil Konsumentinnen und Konsumenten unter anderem eine soziale Gruppe bilden, aktivieren sie eine «Konsumenten Selbstidentität», wenn sie auf ein Unternehmen treffen, welches sie in den Innovationsprozess

einbindet. Bei den beobachtenden Konsumentinnen und Konsumenten entsteht dann das Gefühl, selbst partizipiert zu haben, obwohl sie sich nicht selbst einbringen mussten. Als Resultat entsteht eine stärkere Identifikation mit dem Unternehmen und eine grössere Präferenz für dessen Produkte und Dienstleistungen.

Zwei Faktoren beeinflussen, wann Konsumentinnen und Konsumenten Unternehmen bevorzugen, die sich auf Crowdsourcing und Open Innovation stützen. Erstens die wahrgenommene Ähnlichkeit zwischen der Kundschaft und den beim Unternehmen partizipierenden Konsumierenden und zweitens die Offenheit des Unternehmens in Bezug auf die Selektion dieser Personen.

Dabei ist insbesondere der Effekt der wahrgenommenen Ähnlichkeit interessant. Ist die wahrgenommene Ähnlichkeit zwischen der Kundschaft und partizipierenden Konsumentinnen und Konsumenten hoch, präferieren Kundinnen und Kunden Unternehmen, die Konsumentinnen und Konsumenten in den Innovationsprozess einbinden. Dagegen dreht sich der Effekt gar, wenn die wahrgenommene Ähnlichkeit zwischen der Kundschaft und partizipierenden Konsumentinnen und Konsumenten niedrig ist. Das heisst, dann präferieren Kundinnen und Kunden Unternehmen, die ihren Innovationsprozess intern und ohne Einbindung von Konsumentinnen und Konsumenten durch Crowdsourcing und Open Innovation gestalten. Bei der Integration von Konsumierenden in den Innovationsprozess sollte dementsprechend darauf geachtet werden, die partizipierenden Personen mit der Kundschaft des Produkts oder der Dienstleistung abzugleichen.



W. Dahl, Christoph Fuchs,
Martin Schreier (2015)

**Why and When
Consumers Prefer Products
of User-Driven Firms:
A Social Identification Account.**

Management Science 61(8): 1978–1988
<https://doi.org/10.1287/mnsc.2014.1999>

Bezüglich des zweiten Faktors zur Offenheit der Unternehmen zeigen Dahl, Fuchs und Schreier auf, dass der positive Effekt der Einbindung von Konsumentinnen und Konsumenten in den Innovationsprozess nur dann greift, wenn Unternehmen potenziell alle Konsumentinnen und Konsumenten partizipieren lassen. Werden hingegen nur selektiv einzelne Konsumierende eingeladen zu partizipieren, verschwindet der positive Effekt der Einbindung von Konsumentinnen und Konsumenten. Folglich sollte bei der Einbindung von Konsumentinnen und Konsumenten in den Innovationsprozess darauf geachtet werden, offen und inklusiv auf sie zuzugehen.

Mit ihrem 2015 publizierten Artikel leisten Darren W. Dahl, Christoph Fuchs und Martin Schreier einen wichtigen und praxisrelevanten Beitrag, in dem sie darstellen, wann und wie Unternehmen Crowdsourcing und Open Innovation in ihren Innovationsprozess integrieren sollen.

Felix Schakols

Human-Machine Creativity

How AI Can Influence Human Creativity
in Open Innovation

Innovation platforms are powerful instruments for harnessing crowd creativity. Yet, platform users still struggle with cognitive barriers when looking to unfold their creative potential. This conceptual article identifies three barriers from innovation literature and outlines how artificial intelligence can help users overcome these barriers.

Dr. Melanie Clegg, Prof. Dr. Reto Hofstetter, Prof. Dr. Ivo Blohm, Marc Bravin, M.Sc.

Digital open innovation platforms have experienced dramatic growth in recent years. Firms increasingly involve individuals in innovation processes via such platforms to develop new products, advertising campaigns, or business strategies (Bayus, 2013). Platform users typically post ideas, allowing firms to draw on crowd creativity. These ideas can be a response to a particular innovation challenge posed by a firm, such as PepsiCo's contest for new iced tea flavors for their Lipton beverage brand on the platform Eyeka (Eyeka, 2016). Some firms including Starbucks or LEGO even host their own platforms, where users can either take part in contests or freely submit ideas for novel products (e.g., a Starbucks drink recipe, a LEGO product design). Ideation challenges can also involve image-based ideas for brand logos (a typical design challenge on the platform 99designs), or ideas for complex problems (e.g., create "a better food future for everyone, everywhere" posted on Openido, 2021). All of these platforms share the goal of enabling organizations to reach for innovative ideas beyond what is already known by taking advantage of the creative potential of multiple platform users.

Crucial to the success of such digital innovation processes is the creativity of each individual contributing to the process (Kornish & Ulrich, 2014). Users contribute to the innovation process by generating ideas, further developing these ideas, and evaluating the ideas of others. However, the static one-size-fits-all architecture of such platforms can pose major barriers that prevent users from unleashing their full creative potential, including a fixation on previously suggested ideas, a lack of motivation to develop more and better ideas, and a bias against highly novel ideas.

In this article, we argue that machine learning (ML) and artificial intelligence (AI) can help users overcome these human barriers by automating and customizing processes to support

human creativity. Here, AI is defined as a collection of ML instruments that allow a system to interpret, learn from, and adapt to data (Syam & Sharma, 2018). AI tools on innovation platforms allow the targeted presentation of ideas, automate providing feedback, and optimize presenting ideas for evaluation. Yet, the integration of these approaches into the creative process remains a major challenge to companies and providers of innovation platforms. Hence, our research aims to answer the following overarching question: *How can AI tools increase individual creative performance on innovation platforms?*

Digital Open Innovation Platforms

Given the high potential of digital open innovation, a great deal of research has focused on drivers and barriers to creative performance on digital open innovation platforms. Examples are the impact of user interactions or the visibility of ideas submitted by other users on creative performance (Hofstetter et al., 2018a, 2020; Stephen et al., 2016). Moreover, several papers addressed how feedback or reward structures on innovation platforms should be designed (Hofstetter et al., 2018b; Kosonen et al., 2014; Piezunka & Dahlander, 2019; Toubia, 2006) or how innovation challenges should be formulated to improve the creativity of users (Luo & Toubia, 2015). Another branch of research has focused on efficient ways for companies to evaluate and identify the most promising submitted ideas (Beretta, 2019; Blohm et al., 2016; Hoornaert et al., 2017; Kruff et al., 2019; Magnusson et al., 2016). While this research stream made great progress in improving the quality and quantity of the obtained ideas, user comments, and evaluations, certain limitations remain. For instance, the state-of-the-art is limited by the assumption that these principles are equally and universally effective for every user, which provides ample opportunity for AI tools to improve the current



Dr. Melanie Clegg
Senior Research Assistant,
Vienna University of Economics
and Business, Institute for Digital
Marketing & Behavioral Insights,
Austria and University of Lucerne,
Institute of Marketing and
Analytics, Switzerland
+43 1 31336 6498
melanie.clegg@wu.ac.at

Prof. Dr. Reto Hofstetter
Professor of Digital Marketing,
University of Lucerne, Institute
of Marketing and Analytics,
Switzerland
+41 41 229 58 80
reto.hofstetter@unilu.ch

Prof. Dr. Ivo Blohm
Associate Professor for
Information Systems and
Business Analytics, University
of St. Gallen, Switzerland
+41 71 224 3321
ivo.blohm@unisg.ch

Marc Bravin, M.Sc.
Research Associate and PhD
Candidate, University of Lucerne,
Institute of Marketing and
Analytics, Switzerland and
Lucerne University of Applied
Sciences and Arts, Algorithmic
Business Research Lab,
Switzerland
+41 41 228 24 58
marc.bravin@hslu.ch

platform design. Machine learning-based AI tools allow for a personalized intervention at the user level and could thus be programmed to foster user performance during the creative process. Yet, to the best of our knowledge no research has systematically addressed how AI tools should be designed to foster individual human creativity on innovation platforms.

Artificial Intelligence and Creativity

AI technologies are increasingly entering the creativity domain, yet researchers have typically focused on AI as a creative machine independent of humans. Indeed, AI can be stunningly creative: New AI developments, such as generative adversarial networks (Goodfellow et al., 2014), allow machines to create original art, text, music, or products (Aiva Technology, 2021; Yang et al., 2017; Yu & Chen, 2018). Consider Botnik, an AI program that can write its own Harry Potter chapters (Towsen et al., 2020), or the deep neural network DALL-E that creates images such as avocado armchairs based on text input (Ramesh et al., 2021). Another use of AI tools is the prediction of similarity/novelty as proxies for creativity. Similarity measures based on ML have been

used to predict the popularity of songs (Berger & Packard, 2018), the success of video files (Wei, 2020), the likelihood of funding for crowdfunding projects (Wei et al., 2022), the impact of scientific papers (Uzzi et al., 2013), and the value of patents (Youn et al., 2015). As can be seen, the majority of current AI-creativity research aims to develop tools that may *replace* human input rather than *support* human creative performance (some exceptions are Toubia & Netzer, 2017 for idea generation; or Blohm et al., 2020 for idea evaluation). In what follows, we present a framework making suggestions for AI support instead of replacement.

Human–Machine Creativity Along the Innovation Process

We define creativity as the ability to create an idea that is both original and useful (Mehta & Dahl, 2019). Creativity is a precondition for innovation (Shalley & Gilson, 2004) but differs from innovation in that innovation also refers to the implementation of ideas (Amabile et al., 1996). We structure our research along the normative stages of the innovation process in which users of innovation

platforms participate (figure 1): First, individuals begin by generating ideas (“idea generation”). Second, they develop their initial ideas further based on feedback (“idea development”). Finally, individuals evaluate ideas of others (“idea evaluation”). We draw from psychological and consumer behavior literature to: (1) identify barriers to human creativity that can emerge at each stage, and (2) propose conceptualizations for guiding principles of how AI input at each stage should optimally be designed to overcome these barriers.

Idea Generation

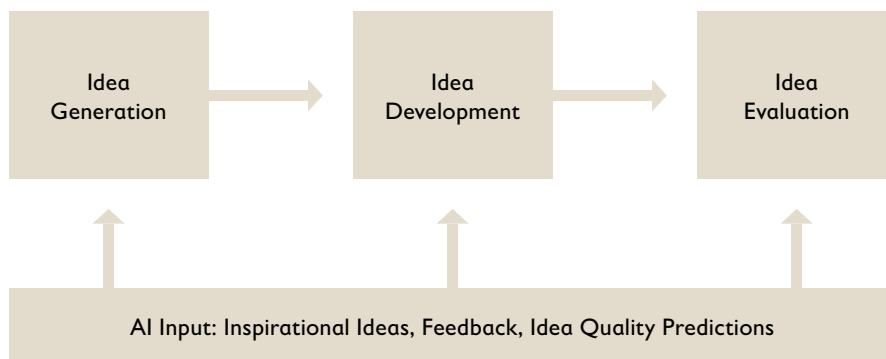
Typically, users of innovation platforms either see the ideas of others before they submit their own, or they see no input at all (if no prior ideas were submitted; Wooten & Ulrich, 2017). Both conditions can inhibit creative performance: Cognitive fixation on ideas of others has been documented on innovation platforms and represents a major constraint to creative performance (Hofstetter et al., 2020). However, the absence of any stimulation can lead to an overreliance on the individual’s own knowledge structures (Moreau & Dahl, 2005). AI tools can help by selecting or producing stimulus ideas that reduce this cognitive fixation.

Conceptualization

Particularly in the early stages of the creativity process, and when the goal is to create a high quantity of ideas, individuals search for ideas in their associative memory to recombine existing knowledge in novel ways (SIAM model; Nijstad & Stroebe, 2006). Therefore, creativity is critically dependent on the accessibility and flexible switching between knowledge structures from different categories (Nijstad et al., 2010).

One way to activate different knowledge structures is the presentation of already

Figure 1: Innovation Process Overview



Source: Own Illustration.



Source: © Adobe Stock.

Management Summary

Current developments in AI technology provide potentially powerful tools to foster idea generation, development, and evaluation on innovation platforms. The value of AI tools consists of automating idea generation, detecting similarities and usefulness, and supplying personalized and conversational input for users. The complexity of innovation contexts and the availability of data sources are limitations that firms seeking to implement AI tools need to consider.

existing ideas prior to idea generation. The effects of this strategy, however, are mixed. On the one hand, the presentation of the ideas of others can be helpful and cognitively stimulating (Paulus et al., 2013), because they activate knowledge structures that were inaccessible before. On the other hand, the presentation of ideas of others can have an adverse effect and lead to a fixation on the ideas already presented (Chrysikou & Weisberg, 2005). The mixed findings on whether others' ideas are stimulating or fixating suggest that it is not trivial which ideas to present for inspiration; for instance, showing words from different semantic categories as stimulating input can increase the diversity of generated ideas (Toubia & Netzer, 2017).

The main benefit of AI-generated stimulus ideas is that they can combine existing elements in novel ways resulting in diverse new ideas, and that they can produce these ideas on a large scale. In comparison to humans, AI is not biased by cognitive fixation on prior ideas—indeed, algorithms and AI are very efficient in exploring novel combinations of existing elements (Boden, 1998; Gobet

& Sala, 2019). Moreover, AI applications can produce many different novel ideas very quickly, such as the image generation model DALL-E 2, which produces multiple images based on user prompts (Ramesh et al., 2021).

Potential AI Applications and Caveats

AI-generated stimulus ideas can be used to inspire human creativity and reduce cognitive fixation on innovation platforms. Thereby, AI can either generate novel ideas, or customize the presentation of user-generated ideas on innovation platforms (e.g., showing highly dissimilar versus very similar ideas). Concretely, firms can develop AI tools that use topic modeling algorithms or language models that can select and generate stimulus ideas based on past suggestions.

One potential downside of AI ideas would be that users tend to fixate even more on AI ideas because they do not feel a social obligation to distance themselves from former ideas. Moreover, the quality and relatedness of the AI ideas would

need to be checked carefully. It is also not clear whether all users would appreciate AI-generated ideas as they might doubt the AI's ability to act creatively (e.g., Haslam, 2006).

Idea Development

Feedback and reward systems are important motivational factors on innovation platforms (Bayus, 2013; Hofstetter et al., 2018b). However, feedback is typically not provided to all users on innovation platforms, because it is time-consuming to produce (Crowdspring, 2020; Lundquist, 2017), and community feedback is attracted only by a small fraction of ideas (Dellarocas & Wood, 2008). This is problematic for users' creative performance because lacking feedback can undermine the effort and motivation to contribute more ideas (Beretta et al., 2018; Piezunka & Dahlander, 2019; Zhu et al., 2019).

AI-based feedback tools can help here. Conversational technologies enable automatized user interactions, and AI can personalize this conversation instead of sending a standardized response

(Hildebrand & Bergner, 2020; Puntoni et al., 2021). AI feedback in ideation can therefore provide direct, informational feedback to the ideas submitted by a particular user.

Conceptualization

In creative ideation, individuals tend to follow a path of least resistance (POLR), meaning they begin by developing ideas that they come up with first (i.e., easily accessible ideas) and then stop (Dahl & Moreau, 2002; Moreau & Dahl, 2005). Indeed, the best ideas emerge relatively late in the creativity process, and only if individuals are willing to leave the POLR are they likely to produce truly original outcomes (Lucas & Nordgren, 2015; Nijstad et al., 2010).

But additional motivation is generally needed to venture beyond the POLR. Particularly intrinsic motivation has long been known to influence the likelihood and intensity with which individuals engage in creative cognition (Amabile et al., 1996; Hennessey & Amabile, 2010). Important factors contributing to intrinsic motivation are a sense of competence (Deci & Ryan, 2000) and the related emerging sense of self-efficacy. Creative self-efficacy—described as an individual’s belief that they can produce notable creative results (Tierney & Farmer, 2002)—has been claimed as one of the most important contributors to creative engagement and self-motivated eagerness to make a discovery (Bandura, 1997).

However, lack of information about their own performance can inhibit users from experiencing creative self-efficacy and competence and undermines their willingness to continue with the task after having generated their first few ideas (i.e., they are less likely to leave the POLR). In contrast, being provided with personalized AI feedback that entails concrete suggestions should foster a sense of creative self-efficacy and

motivate the individual to produce more creative ideas.

Potential AI Applications and Caveats

Easily implementable tools to personalize feedback comprise the automatic screening of ideas for length and complexity of the wording (for text-based ideas) and giving feedback on how to simplify the wording. ML models can analyze ideas in terms of these formal quality criteria (Rhyne & Blohm, 2017). Automatized topic analysis (for text data) or similarity analysis (for image data) could also be used to inform users about the degree of novelty of their proposed idea in comparison to ideas already submitted by other users (e.g., “This color combination has already been suggested by 40% of other users”). Such real-time analyses of ideas and

the provision of customized feedback could significantly improve competence perceptions and motivation in investing more effort in the creative task.

However, a backfiring effect of personalized feedback may be that it suggests external control of the ideation process, thus reducing perceived competence and creative self-efficacy. The impression of receiving “controlling” feedback might be more pronounced for personalized feedback, as generic feedback could be more easily attributed to external factors like the platform design. Moreover, if feedback is provided too early in the process or too specialized, users might focus overly on their own initially generated ideas. In turn, they might even produce less diverse ideas and focus on their improvement instead of coming up with novel ideas (Nijstad et al., 2010). Therefore, the AI’s timing and conversational style are likely to be crucial for its beneficial effect.

Main Propositions

- 1 Users of innovation platforms suffer from limitations and cognitive biases along the innovation process.
- 2 AI-generated ideas and the customized presentation of ideas can reduce cognitive fixation if ideas are presented appropriately.
- 3 Conversational AI can provide personalized feedback to increase creative self-efficacy and motivation during idea development if individuals are willing to embrace the feedback.
- 4 Presenting meaningful cues for idea evaluation can help overcome biases against novel ideas if such cues are based on available data.

Idea Evaluation

One of the biggest challenges for companies in digital innovation is selecting one or a few out of many generated ideas (Blohm et al., 2011; Krufft et al., 2019). Screening out ideas is critical because adopting a bad idea—a type I error—is costly for a firm (Chandy et al., 2006; Goldenberg et al., 2001). However, missing blockbuster ideas—a type II error—constitutes a lost opportunity that could eventually prove fatal to the organization (Reinig et al., 2007).

Therefore, accurately evaluating ideas is crucial for innovation managers, who are greatly challenged by the sheer mass of ideas emerging from digital innovation. Consequently, managers often suffer from a cognitive overload and rely on superficial and inaccurate cues (Blohm et al., 2016). Examples are community-based ratings that are often driven by social mechanisms rather than objective idea quality (Chen et al., 2009; Hofstetter et

al., 2018a), information about the person who has produced the idea (Kruft et al., 2019; Magnusson et al., 2016), or superficial cues (e.g., length of the description) of the idea (Beretta, 2019). Even worse, managers may tend to rely on their “gut feeling” about an idea and an inherent bias against novelty. AI tools may help innovation managers make better evaluations by providing objective and informational cues they can rely on, thus reducing cognitive overload and biases against novel ideas.

Conceptualization

Evaluating ideas on innovation platforms is an evaluation problem under uncertainty (e.g., Tversky & Kahneman, 1974). Very novel ideas increase the uncertainty because they are by definition less familiar and therefore seen as less feasible, uncertain, and riskier (Boudreau et al., 2016; Girotra et al., 2010). This bias against new and preference for familiar ideas is termed *novelty aversion*, and it can result in the rejection of very novel ideas (Crisuolo et al., 2017; Eidelman et al., 2009).

Distraction–conflict theory (Baron, 1986) holds that people tend to narrow their attention to a few central cues when they suffer from cognitive overload (as is the case for the complex and highly uncertain evaluation of many novel ideas). In the absence of informational cues, individuals are likely to narrow their evaluation of an idea to their “gut feeling” (Baumeister et al., 2008) and are consequently more likely to reject highly novel ideas that they feel uncertain about (Mueller et al., 2014). Therefore, the main goal of AI tools in idea evaluation is to reduce cognitive overload and novelty aversion.

Potential AI applications and caveats

Potentially successful cues to reduce novelty aversion are providing clear

Lessons Learned

- 1 Managers are well-advised to embrace the potential of AI to reduce user biases and rethink one-size-fits-all designs of innovation platforms and challenges.
- 2 However, AI tools need to be carefully tailored to each innovation platform, its users, and in some cases the innovation problem.
- 3 Additionally, a realistic estimation of the quality and availability of data to first calibrate the AI tool is necessary.
- 4 Importantly, both user overdependence on and aversion against AI input can diminish the effectiveness of this human–AI approach to facilitate innovation.

and personalized rating instructions, pre-screening and displaying of similar ideas, and objective measures for the novelty and usefulness of an idea. Conversational AI could give rating tips that may be personalized if the AI detects that the rater systematically discounts ideas (using similarity detection and compa-

The main goal of AI tools in idea evaluation is to reduce cognitive overload and novelty aversion.

ring rating scores). The response would be a hint such as: “This idea is novel, do you think it can be feasible?” Moreover, pre-screening ideas may help facilitate comparisons of ideas by presenting similar ideas alongside each other, which may facilitate ratings and reduce cognitive overload (Banken et al., 2019; Klein & Garcia, 2015). Such an approach could also help to not contrast ‘extreme’ ideas with highly familiar ones, in which case users might be particularly adverse to novelty. Finally, AI tools may automatically

provide objective novelty and usefulness scores. Novelty scores could be developed by similarity detection; proxies for usefulness could be developed if information about successful solutions for similar innovation challenges is available (e.g., ideas rewarded in prior contests, rated favorably by users, or successfully implemented in the market). Showing AI pre-ratings would certainly reduce uncertainty and cognitive overload of raters, thus mitigating the risk of relying on inaccurate cues or failing to novelty bias (e.g., Riedl et al., 2013).

However, optimizing the presentation of ideas and their AI evaluations is a challenging task. For instance, showing many highly similar ideas next to each other may intensify rather than reduce novelty aversion. Moreover, individuals may differ in their adoption of AI cues and evaluations. For instance, experts might rather trust their own experience and intuition and could be less willing to rely on evaluation aids and AI input (Logg et al., 2019). Moreover, the calibration of the AI cues is critical: Novel ideas should not be promoted only because they are novel; instead, they should be balanced with cues that point to the idea’s usefulness. A final important caveat regarding this approach would be to make sure that the

AI tools can be trained on meaningful data to determine adequate usefulness ratings.

Conclusion, Limitations, and Outlook

Digital platforms have become key elements to foster external and internal innovation. This research discusses the use of AI tools to reduce systematic biases

in human creativity on such platforms, including cognitive fixation, PLOR, and novelty aversion. The stepwise integration of AI tools in idea generation, development, and evaluation can result in a novel human-machine approach in which humans and machines interact to achieve a joint creative performance.

However, developing meaningful AI models in the innovation context remains

challenging (Haefner et al., 2021). Firstly, the need for data is particularly important in these contexts, as challenges and generated ideas are often highly specific for the individual firm and innovation challenge (e.g., the generation of usefulness ratings would largely depend on a previous innovation challenge). Moreover, many problems require a deeper understanding and societal, organizational, and economic context, which is hard to grasp for

References

- Aiva Technology. (2021). AIVA. <https://www.aiva.ai>
- Amabile, T. M., Conti, R., Coon, H., Lazenby, J., & Herron, M. (1996). Assessing the work environment for creativity. *Academy of Management Journal*, 39(5), 1154–1184.
- Bandura, A. (1997). *Self-Efficacy: The exercise of control*. Freeman.
- Banken, V., Ilmer, Q., Seeber, I., & Haeussler, S. (2019). A method for smart idea allocation in crowd-based idea selection. *Decision Support Systems*, 124, 113072.
- Baron, R. S. (1986). Distraction-conflict theory: Progress and problems. In L. Berkowitz (Ed.), *Advances in Experimental Social Psychology* (Vol. 19, pp. 1–40). Academic Press.
- Baumeister, R. F., Sparks, E. A., Stillman, T. F., & Vohs, K. D. (2008). Free will in consumer behavior: Self-control, ego depletion, and choice. *Journal of Consumer Psychology*, 18(1), 4–13.
- Bayus, B. L. (2013). Crowdsourcing new product ideas over time: An analysis of the Dell IdeaStorm community. *Management Science*, 59(1), 226–244.
- Beretta, M. (2019). Idea selection in web-enabled ideation systems. *Journal of Product Innovation Management*, 36(1), 5–23.
- Beretta, M., Björk, J., & Magnusson, M. (2018). Moderating ideation in web-enabled ideation systems. *Journal of Product Innovation Management*, 35(3), 389–409.
- Berger, J., & Packard, G. (2018). Are atypical things more popular? *Psychological Science*, 29(7), 1178–1184.
- Blohm, I., Antretter, T., Sirén, C., Grichnik, D., & Wincnet, J. (2020). It's a peoples game, isn't it?! A comparison between the investment returns of business angels and machine learning algorithms. *Entrepreneurship Theory and Practice*, 46(4), 1054–1091.
- Blohm, I., Riedl, C., Füller, J., & Leimeister, J. M. (2016). Rate or trade? Identifying winning ideas in open idea sourcing. *Information Systems Research*, 27(1), 27–48.
- Blohm, I., Riedl, C., Leimeister, J. M., & Krcmar, H. (2011). Idea evaluation mechanisms for collective intelligence in open innovation communities: Do traders outperform raters? In *Proceedings of the 32nd International Conference on Information Systems, ICIS 2011*.
- Boden, M. A. (1998). Creativity and artificial intelligence. *Artificial Intelligence*, 103(1), 347–356.
- Boudreau, K. J., Guinan, E. C., Lakhani, K. R., & Riedl, C. (2016). Looking across and looking beyond the knowledge frontier: Intellectual distance, novelty, and resource allocation in science. *Management Science*, 62(10), 2765–2783.
- Carmon, Z., Schrift, R., Wertenbroch, K., & Yang, H. (2019). Designing AI systems that customers won't hate. *MIT Sloan Management Review*, 61(2), 1–6.
- Chandy, R., Hopstaken, B., Narasimhan, O., & Prabhu, J. (2006). From invention to innovation: Conversion ability in product development. *Journal of Marketing Research*, 43(3), 494–508.
- Chen, L., Goes, P., Marsden, J. R., & Zhang, Z. (2009). Design and use of preference markets for evaluation of early stage technologies. *Journal of Management Information Systems*, 26(3), 45–70.
- Chryssikou, E. G., & Weisberg, R. W. (2005). Following the wrong footsteps: Fixation effects of pictorial examples in a design problem-solving task. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 31(5), 1134.
- Crisculo, P., Dahlander, L., Grohsjean, T., & Salter, A. (2017). Evaluating novelty: The role of panels in the selection of R&D projects. *Academy of Management Journal*, 60(2), 433–460.
- Crowdspring. (2020). How important is my feedback to creatives participating in my project? <https://www.crowdspring.com/help/managing-project/how-important-is-my-feedback-to-creatives-participating-in-my-project>
- Dahl, D. W., & Moreau, P. (2002). The influence and value of analogical thinking during new product ideation. *Journal of Marketing Research*, 39(1), 47–60.
- Deci, E. L., & Ryan, R. M. (2000). The “what” and “why” of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, 11(4), 227–268.
- Dellarocas, C., & Wood, C. A. (2008). The sound of silence in online feedback: Estimating trading risks in the presence of reporting bias. *Management Science*, 54(3), 460–476.
- Eidelman, S., Crandall, C. S., & Pattershall, J. (2009). The existence bias. *Journal of Personality and Social Psychology*, 97(5), 765–775.
- Eyeka (2016). Lipton iced tea innovation. <https://en.eyeka.com/contests/10056-lipton-iced-tea-innovation/results>
- Girotra, K., Terwiesch, C., & Ulrich, K. T. (2010). Idea generation and the quality of the best idea. *Management Science*, 56(4), 591–605.
- Gobet, F., & Sala, G. (2019). How artificial intelligence can help us understand human creativity. *Frontiers in Psychology*, 10, 1401.
- Goldenberg, J., Lehmann, D. R., & Mazursky, D. (2001). The idea itself and the circumstances of its emergence as predictors of new product success. *Management Science*, 47(1), 69–84.
- Goodfellow, I., Pouget-Abadie, J., Mirza, M., Xu, B., Warde-Farley, D., Ozair, S., Courville, A., Bengio, Y. (2014). Generative adversarial nets. *Advances in Neural Information Processing Systems 27 (NIPS 2014)*, <https://arxiv.org/abs/1406.2661>
- Haslam, N. (2006). Dehumanization: An integrative review. *Personality and Social Psychology Review*, 10(3), 252–264.
- Haefner, N., Wincnet, J., Parida, V., & Gassmann, O. (2021). Artificial intelligence and innovation management: A review, framework, and research agenda. *Technological Forecasting and Social Change*, 162, 120392.
- Hennessey, B. A., & Amabile, T. M. (2010). Creativity. *Annual Review of Psychology*, 61(1), 569–598.
- Hildebrand, C., & Bergner, A. (2021). Conversational robo advisors as surrogates of trust: Onboarding experience, firm perception, and consumer financial decision making. *Journal of the Academy of Marketing Science*, 49, 659–676.
- Hofstetter, R., Aryobsei, S., & Herrmann, A. (2018a). Should you really produce what consumers like online? Empirical evidence for reciprocal voting in open innovation contests. *Journal of Product Innovation Management*, 35(2), 209–229.
- Hofstetter, R., Dahl, D. W., Aryobsei, S., & Herrmann, A. (2020). Constraining ideas: How seeing ideas of others harms creativity in open innovation. *Journal of Marketing Research*, 58(1), 95–114.
- Hofstetter, R., Zhang, J. Z., & Herrmann, A. (2018b). Successive open innovation contests and incentives: Winner-take-all or multiple prizes? *Journal of Product Innovation Management*, 35(4), 492–517.
- Hoornaert, S., Ballings, M., Malthouse, E. C., & Van den Poel, D. (2017). Identifying new product ideas: Waiting for the wisdom of the crowd or screening ideas in real time. *Journal of Product Innovation Management*, 34(5), 580–597.
- Klein, M., & Garcia, A. C. B. (2015). High-speed idea filtering with the bag of lemons. *Decision Support Systems*, 78, 39–50.

AI tools. Secondly, managing the tradeoff between novelty and usefulness/feasibility is a task that requires a careful a-priori definition of the innovation challenge. Merely relying on pre-trained AI models will in most cases prove insufficient, requiring AI tools to be customized to each individual innovation challenge. Thirdly, even if a useful AI tool can be developed, novel human biases can diminish their usability: Both overdependence (e.g.,

a blind reliance on tools) and aversion against algorithmic input may decrease the effectiveness of tools on the user side (e.g., Carmon et al., 2019; Logg et al., 2019).

Overall, AI has a powerful potential to improve open innovation processes, but it has to be tailored to platforms and the users interacting with it. Following a generic innovation process, we offer a novel perspective that helps organizations to

systematically mitigate the behavioral biases that are central impediments to using these platforms and to effective ideation in general. Managers and policy makers can implement and test our suggestions and combine human with AI creativity to build more effective socio-technical systems—a theme that will gain in importance as AI and machine learning become increasingly integrated into decision-making processes. ■

Kornish, L. J., & Ulrich, K. T. (2014). The importance of the raw idea in innovation: Testing the sow's ear hypothesis. *Journal of Marketing Research*, 51(1), 14–26.

Kosonen, M., Gan, C., Vanhala, M., & Blomqvist, K. (2014). User motivation and knowledge sharing in idea crowdsourcing. *International Journal of Innovation Management*, 18(5), 1450031.

Kruft, T., Tilsner, C., Schindler, A., & Kock, A. (2019). Persuasion in corporate idea contests: The moderating role of content scarcity on decision-making. *Journal of Product Innovation Management*, 36(5), 560–585.

Logg, J. M., Minson, J. A., & Moore, D. A. (2019). Algorithm appreciation: People prefer algorithmic to human judgment. *Organizational Behavior and Human Decision Processes*, 151, 90–103.

Lucas, B. J., & Nordgren, L. F. (2015). People underestimate the value of persistence for creative performance. *Journal of Personality and Social Psychology*, 109(2), 232–243.

Lundquist, S. (2017). Wie man besseres Design-Feedback gibt. <https://99designs.de/blog/design-tipsps/design-feedback>

Luo, L., & Toubia, O. (2015). Improving online idea generation platforms and customizing the task structure on the basis of consumers' domain-specific knowledge. *Journal of Marketing*, 79(5), 100–114.

Magnusson, P. R., Wästlund, E., & Netz, J. (2016). Exploring users' appropriateness as a proxy for experts when screening new product/service ideas. *Journal of Product Innovation Management*, 33(1), 4–18.

Mehta, R., & Dahl, D. W. (2019). Creativity: Past, present, and future. *Consumer Psychology Review*, 2(1), 30–49.

Moreau, C. P., & Dahl, D. W. (2005). Designing the solution: The impact of constraints on consumers' creativity. *Journal of Consumer Research*, 32(1), 13–22.

Mueller, J. S., Wakslak, C. J., & Krishnan, V. (2014). Construing creativity: The how and why of recognizing creative ideas. *Journal of Experimental Social Psychology*, 51, 81–87.

Nijstad, B. A., de Dreu, C. K. W., Rietzschel, E. F., & Baas, M. (2010). The dual pathway to creativity model: Creative ideation as a function of flexibility and persistence. *European Review of Social Psychology*, 21(1), 34–77.

Nijstad, B. A., & Stroebe, W. (2006). How the group affects the mind: A cognitive model of idea generation in groups. *Personality and Social Psychology Review*, 10(3), 186–213.

Openideo (2021). How might we build a better food future for everyone, everywhere? <https://challenges.openideo.com/challenge/the-food-systems-game-changers-lab?documentId=2e53d1fe36f348f2ca44f25702174013&documentTableId=1297037806479334024>

Paulus, P. B., Kohn, N. W., Ardititi, L. E., & Korde, R. M. (2013). Understanding the group size effect in electronic brainstorming. *Small Group Research*, 44(3), 332–352.

Piezunka, H., & Dahlander, L. (2019). Idea rejected, tie formed: Organizations' feedback on crowdsourced ideas. *Academy of Management Journal*, 62(2), 503–530.

Puntoni, S., Reczek, R. W., Giesler, M., & Botti, S. (2021). Consumers and artificial intelligence: An experiential perspective. *Journal of Marketing*, 85(1), 131–151.

Ramesh, A., Pavlov, M., Goh, G., Gray, S., Voss, C., Radford, A., Chen, M., & Sutskever, I. (2021). Zero-shot text-to-image generation. Proceedings of the 38th International Conference on Machine Learning, PMLR 139, pp. 8821–8831. <https://arxiv.org/abs/2102.12092>

Reinig, B. A., Briggs, R. O., & Nunamaker, J. F. (2007). On the measurement of ideation quality. *Journal of Management Information Systems*, 23(4), 143–161.

Rhyn, M., & Blohm, I. (2017). A machine learning approach for classifying textual data in crowdsourcing. Proceedings of Wirtschaftsinformatik 2017, Towards Thought Leadership in Digital Transformation. <https://aisel.aisnet.org/wi2017/track12/paper/2>

Riedl, C., Blohm, I., Leimeister, J. M., & Krömer, H. (2013). The effect of rating scales on decision quality and user attitudes in online innovation communities. *International Journal of Electronic Commerce*, 17(3), 7–36.

Shalley, C. E., & Gilson, L. L. (2004). What leaders need to know: A review of social and contextual factors that can foster or hinder creativity. *The Leadership Quarterly*, 15(1), 33–53.

Stephen, A. T., Zubcsek, P. P., & Goldenberg, J. (2016). Lower connectivity is better: The effects of network structure on redundancy of ideas and customer innovativeness in interdependent ideation tasks. *Journal of Marketing Research*, 53(2), 263–279.

Syam, N., & Sharma, A. (2018). Waiting for a sales renaissance in the fourth industrial revolution: Machine learning and artificial intelligence in sales research and practice. *Industrial Marketing Management*, 69, 135–146.

Tierney, P., & Farmer, S. M. (2002). Creative self-efficacy: Its potential antecedents and relationship to creative performance. *Academy of Management Journal*, 45(6), 1137–1148.

Toubia, O. (2006). Idea generation, creativity, and incentives. *Marketing Science*, 25(5), 411–425.

Toubia, O., & Netzer, O. (2017). Idea generation, creativity, and prototypicality. *Marketing Science*, 36(1), 1–20.

Towsen, N., Lumi, Dunn, Z., Cooper, J., Mulitz, G., Fredrickson, M., Barlow, S., Koff, T., & Bender, J. (2020, October 13). Harry Potter Chapter. Botnik. <https://botnik.org/harry-potter-chapter/>

Tversky, A., & Kahneman, D. (1974). Judgment under uncertainty: Heuristics and biases. *Science*, 185(4157), 1124–1131.

Uzzi, B., Mukherjee, S., Stringer, M., & Jones, B. (2013). Atypical combinations and scientific impact. *Science*, 342(6157), 468–472.

Wei, Y. M. (2020). The similarity network of motion pictures. *Management Science*, 66(4), 1647–1671.

Wei, Y. M., Hong, J., & Tellis, G. J. (2022). Machine learning for creativity: Using similarity networks to design better crowdfunding projects. *Journal of Marketing*, 86(2), 87–104.

Wooten, J. O., & Ulrich, K. T. (2017). The impact of visibility in innovation tournaments: Evidence from field experiments. Working Paper, <http://dx.doi.org/10.2139/ssrn.2214952>

Yang, L.-C., Chou, S.-Q., & Yang, Y.-H. (2017). MidiNet: A convolutional generative adversarial network for symbolic-domain music generation. <https://arxiv.org/abs/1703.10847>

Youn, H., Strumsky, D., Bettencourt, L. M. A., & Lobo, J. (2015). Invention as a combinatorial process: Evidence from US patents. *Journal of the Royal Society Interface*, 12(106), 20150272.

Yu, D., & Chen, H. (2018). A review of robotic drawing. In 2018 IEEE 8th Annual International Conference on CYBER Technology in Automation, Control, and Intelligent Systems (CYBER), pp. 334–338.

Zhu, H., Kock, A., Wentker, M., & Leker, J. (2019). How does online interaction affect idea quality? The effect of feedback in firm-internal idea competitions. *Journal of Product Innovation Management*, 36(1), 24–40.

B-to-B-Marketing ist Hochleistungs- marketing

Ein Interview mit Anton Holenstein,
Chief Strategy Officer, und
Burkhard Böndel, Head Corporate
Communications, beide bei Bühler

Die Rahmenbedingungen von B-to-B-Märkten haben sich in den letzten Jahrzehnten dynamisch entwickelt. Konsequente Markt- und Kundenorientierung bilden dabei die Basis für eine erfolgreiche Marktbearbeitung. Dringender denn je muss B-to-B-Marketing allerdings neu gedacht werden – hinsichtlich der Themen Digitalisierung, Automatisierung, Live-Kommunikation und Nachhaltigkeit. Dr. Anton Holenstein, Chief Strategy Officer, und Burkhard Böndel, Head Corporate Communications, beide bei Bühler, geben einen Einblick in die neuesten Erkenntnisse und Entwicklungen im B-to-B-Marketing von Bühler.

Das Interview führen Prof. Dr. Sven Reinecke, Direktor des Instituts für Marketing und Customer Insight an der Universität St. Gallen, und Meriton Ceka, M.A., Wissenschaftlicher Mitarbeiter am Institut für Marketing und Customer Insight an der Universität St. Gallen



Quelle: © Bühler AG.

Könnten Sie zu Beginn kurz Ihre Funktion und Tätigkeiten bei Bühler erläutern?



HOLENSTEIN Ich bin seit Anfang 2000 bei Bühler, das sind mittlerweile 22 Jahre. Mehrheitlich hatte ich die Funktionen Business Strategy und Strategic Planning inne. Von meinem Background her bin ich promovierter Physiker und habe einen Executive MBA (EMBA) an der HSG und einen EMBA an der HWZ in Marketing absolviert.



BÖNDEL In der ersten Stufe meiner beruflichen Entwicklung war ich 10 Jahre lang journalistisch tätig. Dann war ich Unternehmensgründer und Agenturinhaber im Bereich PR und Kommunikation. Anschliessend wechselte ich in die Industrie und bin nun seit fast 9 Jahren bei Bühler. Zu Beginn war ich als Leiter der Unternehmenskommunikation bei Bühler für das Thema Branding zuständig, inzwischen verantworte ich gesamthaft die Themen Marketing und Kommunikation, also auch die Produktkommunikation.

Besonderheiten und Herausforderungen im B-to-B-Marketing

Konsumgüterhersteller erheben gelegentlich den Anspruch, dynamischeres oder moderneres Marketing zu betreiben als Industriegüterunternehmen. Aus unserer Forschung wissen wir aber, dass B-to-B-Marketing Hochleistungsmarketing ist. Was ist für Sie das Besondere am B-to-B-Marketing? Welches sind die grössten Herausforderungen?



HOLENSTEIN Im B-to-B-Kontext steht uns nicht nur ein einzelner Käufer gegenüber, sondern ein gesamtes Buying-Center, welches es zu bedienen gilt. Im Buying-Center haben das Top-Management, die Einkäufer, die Nutzer oder die Beeinflusser alle unterschiedlichen Anforderungen, die es vom anbietenden Unternehmen zu erfüllen gilt. Und die Kunden professionalisieren vermehrt ihre Buying-Center, was das B-to-B-Marketing noch herausfordernder macht.

Burkhard Böndel

Head Corporate Communications,
Bühler
burkhard.boendel@buhlergroup.com

Dr. Anton Holenstein

Chief Strategy Officer,
Bühler
anton.holenstein@buhlergroup.com



BÖNDEL Das B-to-B-Geschäft wird in der Tat häufig als träge bezeichnet. Es ist aus der Natur unserer Produkte heraus sehr langfristig ausgelegt, denn unsere Produkte sind teils Dekaden im Einsatz. Im Vergleich zu einem Konsumgüterhersteller haben wir andere Innovationszyklen und überschaubare Kundengruppen. Für uns ist in Marketing und Kommunikation entscheidend, dass wir stabile und sehr vertrauensvolle Kundenbeziehungen aufbauen und halten. Gleichwohl ist das Innovationstempo bezüglich der einzelnen Lösungen sehr hoch. Wir müssen sicherstellen, dass wir die Entwicklung und Möglichkeiten der Digitalisierung nutzen. Die grösste Herausforderung sehen wir deshalb darin, unsere Kundenbeziehungen physisch und digital kombiniert zu pflegen. Im Kern muss die Digitalisierung vielmehr helfen, die gesamte B-to-B-Customer-Journey besser nachvollziehen und analysieren zu können, um das Management besser zu steuern. Für mich ist der entscheidende Wettbewerbsvorteil innerhalb der digitalen Entwicklung, aus Daten richtige Erkenntnisse zu gewinnen und diesen Prozess zu automatisieren. Automatisierung schafft Effizienz und Effektivität. Unser Ziel ist, dadurch mehr «Quality Time» mit unseren Kunden zu gewährleisten.

Derzeit gewinnen wir Erfahrungen mit den ersten Prototypen. So müssen wir künftig weiter automatisieren und deutlich mehr Content erzeugen: nicht lediglich 10%, sondern 30–50-mal mehr Inhalte.

Findet die Content-Generierung primär Inhouse statt?



BÖNDEL Grundsätzlich favorisiere ich klar das Insourcing-Modell für das gesamte Thema B-to-B-Marketing, da Content-Marketing heutzutage als Differenzierungsfaktor im B-to-B-Marketing gilt. Ähnlich wie unsere Technologie,



Bühler mit Sitz in Uzwil (SG) ist ein international agierender Anbieter von Prozesslösungen für drei zentrale Geschäftsbereiche: Lebens- und Futtermittel (Grains & Food), kulinarische Köstlichkeiten (Consumer Foods) und moderne Werkstoffe (Advanced Materials) für die Fertigung energieeffizienter Fahrzeuge und Gebäude.

Täglich kommen Milliarden Menschen mit Technologien von Bühler in Berührung, um ihre Grundbedürfnisse an Lebensmitteln und Mobilität zu erfüllen.



Bühler-Standort in Uzwil. Quelle: © Bühler AG.

die wir ja auch gesamthaft Inhouse erforschen und uns damit gegenüber dem Wettbewerb abheben. Agenturen beziehen wir nur ein, wenn wir spezifisches Know-how situativ benötigen, bei dem es sich nicht lohnt, dieses Wissen intern aufzubauen – oder aber wir Kapazitätsspitzen ausgleichen müssen. Als Beispiel mussten wir bei den Bühler Networking Days auf einen Schlag eine grosse Menge Content kreieren, wofür wir externe Unterstützung benötigten. Früher wurden Content-Marketing und Storytelling als Add-on-Funktion angesehen. Heute stellt sich vielmehr die Frage, wie wir authentische und mehrwertstiftende Geschichten erzählen können und diese dann kommunikativ multiplizieren.

Welches waren Ihre grössten Erfolge in den letzten Jahren?



HOLENSTEIN Community-Building ist im B-to-B-Marketing zentral. Ein grosser internationaler Erfolg im Hinblick auf unser B-to-B-Marketing war es, eine Fangemeinde zu erzeugen. Wir haben im Bereich der Mülerei die Milling Academy gegründet, wo wir jährlich über 500 Kursteilnehmende aus über 80 Ländern empfangen. Dies war die Ursprungsidee für die Networking Days zur Bildung einer Community auch für die übrigen Bereiche. Ich denke, es ist uns mehrheitlich gelungen, auch in anderen Branchen Fans zu schaffen.



BÖNDEL Geschäftlich gesehen haben wir uns in der Pandemie ganz gut geschlagen. Wir haben die schwierige Zeit der letzten 2 bis 3 Jahre genutzt, um unsere Forschungs- und Entwicklungsanstrengungen weiter zu steigern und innovative Konzepte zu lancieren. Als Beispiel kann ich die Megacasting-Lösung von Bühler nennen. Im Zuge der Elektromobilität überlegen sich die Fahrzeughersteller, wie sie ihre Fahrzeuge anders bauen können. Wir haben daher neue Maschinen auf den Markt gebracht, mit denen grössere Druckgusslösungen ganze Teile einer Karosserie in einem einzigen Stück fertigen. Genauso stolz sind wir darauf, dass wir uns in allen Geschäftsbereichen zu einem Lösungsanbieter entwickelt haben. In diesem Zuge spielt die Digitalisierung eine Rolle. Wir können die Wertschöpfungskette gesamthaft abbilden. Wenn wir auf der reinen mechanischen und technologischen Ebene konkurrieren würden, hätten wir nicht einen solch grossen Erfolg erzielen können. Als Lösungsanbieter haben wir uns im Wettbewerb stark positioniert, auch durch die Übernahme von Haas im Bereich der Waffelanlagen.

Wie stehen Sie im Bereich der Live-Kommunikation zur These «The winner takes it all»? Künftig wird es einige wenige branchenspezifische internationale Leitmesse geben, wie z.B. die Hannover Messe Industrie, an der B-to-B-Unternehmen präsent sein sollten. Die kleineren Verkaufsevents vor Ort sind ebenfalls nach wie vor attraktiv, wohingegen die mittleren Messen künftig eher sterben werden.



HOLENSTEIN Dem stimme ich weitgehend zu. An Hauptmessen sind wir als Bühler noch präsent, aber die Standfläche hat sich geviertelt. Es hängt auch stark von den Zielen ab, die man verfolgt. An einer Hausmesse beispielsweise kann man gute Kundenbindung und gutes Beziehungsmanagement betreiben, aber die Kundenakquisition ist natürlich an einer Hausmesse etwas schwieriger.

«Ein wichtiger Schritt war es für Bühler, sich weg von den normalen Messen hin zu Hausmessen zu bewegen.»



Anton Hostenstein

Bühler hat vor Corona massiv in Hausmessen investiert, so bspw. den Cubic Innovation Campus. Corona hat einen gewissen Strategiewechsel hin zu virtuellen Events bewirkt. Wie entscheidet ein B-to-B-Unternehmen, was virtuell und was in Präsenz gemacht wird?



HOLENSTEIN Dort wo der Kunde ist, dort wollen wir hin und auch die Online- und die Offline-Welt vereinen. Heutzutage wird 90% der Kaufentscheidung online getroffen und nur noch 10% wirklich physisch vor Ort. Ein wichtiger Schritt war es für Bühler, sich weg von den normalen Messen hin zu Hausmessen zu bewegen. Dort ist das Geld besser investiert.



BÖNDEL Genau, es müssen die Vor- und Nachteile der jeweiligen Kanäle beachtet werden. Wir versuchen, möglichst viel im virtuellen Raum abzuwickeln, so bspw. sachliche und informative Gespräche.



Quelle: © Bühler AG.

Welche Erfahrungen haben Sie bei virtuellen Messen gemacht? Was waren No-Gos?



BÖNDEL Im virtuellen Raum Exponate nachzubauen und darauf zu hoffen, dass Besucher, die ins Netz gehen, sich in einer Art Self-Experience alles ansehen oder sich Dokumente herunterladen – das funktioniert noch nicht richtig. Die Downloadraten in unseren virtuellen 3D-Räumen sind ernüchternd. Ein User verbringt in einem virtuellen Showroom etwa 2 bis 3 Minuten. Wir müssen mit noch besseren Inhalten einen Mehrwert schaffen, eine genaue Abgrenzung zur Website finden und vor allem die Besucher aktiv begleiten. Ein weiteres Learning war, dass Infrastruktur und Ausführung einwandfrei sein müssen. Auch die Anforderung an Inhalte ist enorm gestiegen, da die Abprungmöglichkeiten online viel höher als bei einem physischen Stand sind. Insofern müssen die Besucher über die Inhalte gebunden werden. Auch die Anforderungen an die Art der Gesprächsführung online ist im Vergleich zu früher komplexer geworden, denn die Mimik kann nicht gleichermaßen interpretiert werden.

Besitzen die klassischen Verkäufer die Fähigkeiten, mit den digitalen Tools richtig umzugehen und digital Kundenbeziehungen zu pflegen?



BÖNDEL Wir können hier einen klaren Changeprozess erkennen. Zunächst muss die grundsätzliche Bereitschaft bestehen, offen dafür zu sein. Das beginnt bereits bei kleinen

Aspekten, wie zum Beispiel an einer physischen Messe, an der man mit Persönlichkeit vieles herausholen kann.

Wenn ein Kunde sich annähert und der Verkäufer bspw. bereits in einem Gespräch ist, dann kann er durch nonverbale Kommunikation signalisieren, dass er oder sie in kürzester Zeit sich um den Kunden kümmern wird. Im digitalen Bereich ist das wesentlich schwieriger.



HOLENSTEIN In der digitalen Welt haben wir mehrheitlich Produktmanager eingesetzt. Es findet hier eine Verlagerung der Tätigkeiten aus dem Verkauf in Richtung Marketing- und Produktmanagement statt. So wurden Webinare, um nur ein Beispiel zu nennen, meistens durch Produktmanager geführt.



BÖNDEL Unser Ziel ist allerdings, dass wir strategisch dahin kommen, die Verkaufsmanager so zu schulen, dass sie sich in der digitalen Welt wohl fühlen. Die Kernkompetenz eines Vertriebsmanagers bestand darin, persönliche Kundenbeziehungspflege zu optimieren und dabei etwas zu verkaufen. Auch in der digitalen Welt ist Kundenbeziehungspflege nach wie vor entscheidend, erhält jedoch eine andere Dimension. Die Verkaufsmannschaft bei Bühler hat einen technischen Background, weshalb sie früher Verkaufsingenieure genannt wurden. Wir müssen die Verkaufsmannschaft jedoch dahingehend bewegen, mithilfe digitaler Tools die Kunden besser zu verstehen und zu pflegen.

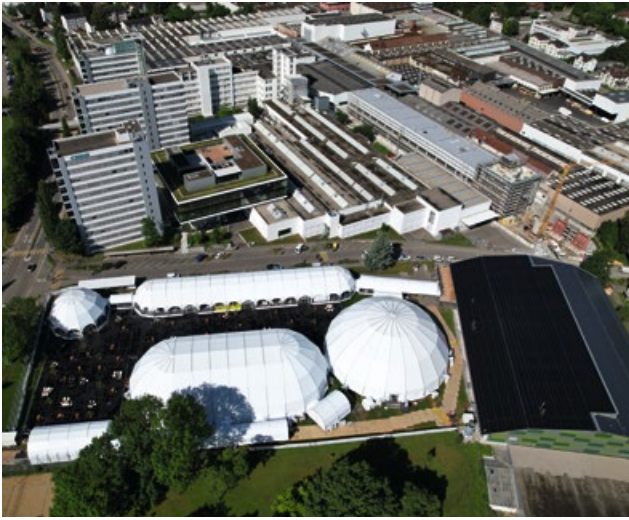
Wie stellen Sie sicher, dass das Wissen und die Erfahrungen zwischen Marketing und Verkauf geteilt werden?



HOLENSTEIN Wir verfolgen diesbezüglich verschiedene Massnahmen. Eine Aktivität, die wir für das Recruiting nutzen, nennt sich Inside-Sales. Dafür screenen wir das gesamte Web und erstellen basierend auf Daten eine Potenzialanalyse für potenzielle Kunden, organisieren Telefonanrufe, und übergeben die Ergebnisse dann dem traditionellen Verkauf. Zudem unterstützt diese Aktivität auch das Recruiting, indem wir die Studierenden oder Studienabgänger dann in unsere Verkaufsmannschaft aufnehmen.



BÖNDEL Eine engere Zusammenarbeit zwischen Marketing und Kommunikation, Produktmanagement und Verkauf



ist sehr wichtig. Wir haben ein sogenanntes Power-Triple-Programm, in der Produktmanagement, Sales und Marketing gemeinsam daran arbeiten, wie Lösungen besser in den Markt gebracht werden können. Vor 2 Jahren haben wir zusätzlich eine Sales Academy intern ins Leben gerufen. Darin schulen wir die Vertriebsmitarbeitenden zu unterschiedlichen Themen, wie bspw. zur Digitalisierung, zu Storytelling oder Value-based-Selling.

Wie könnte eine optimale Verteilung zwischen virtuellen Messen, Hausmessen und klassischen Messen aussehen?



BÖNDEL Ich würde sagen, 70% virtuell, 20% physisch, wo ich zu einem Kunden hinfahre und 10% Messen, wie Hausmessen oder die klassischen Messen. Wenn ich mir jetzt die Woche eines Vertriebsmitarbeitenden vor Augen führe, dann müsste es eigentlich so sein, dass die überwiegende Zahl der Kundenkontakte heute virtuell stattfindet. Corona hat hier schon einen massiven Schub ausgelöst, dass wir uns mit Kunden in Teams-Calls zusammenfinden, ist schon selbstverständlich geworden. Natürlich ist das aber auch sehr regions- und länderspezifisch, weshalb diese Richtwerte nur als Tendenz angesehen werden sol-

Für die Bühler Networking Days 2022 kamen rund 1000 Kunden und Partner aus aller Welt nach Uzwil. Quelle: © Bühler AG.



Neue Carat-Serie von Bühler: Mit Innovationen die Krise meistern. Quelle: © Bühler AG.



«Unser Credo ist, dass wir Nachhaltigkeit als wirtschaftlichen Treiber und nicht nur als ein Add-on sehen.»

Burkhard Böndel

len. Wir bieten hier aber unseren Vertriebsmitarbeitenden die Flexibilität, selbst entscheiden zu können, wie sie die Verteilung handhaben möchten. Als wir die virtuellen Messen lanciert haben, war die Bereitschaft der Kunden zur Teilnahme enorm. Es hat uns beeindruckt, dass der Markt und die Kunden viel offener und bereiter waren, als wir gedacht hätten. Wir hatten weltweit über 10 000 Registrierungen auf unserer virtuellen Plattform, wovon um die 5000 an unseren Events teilgenommen haben. Die Überführung der Kunden in Einzelgespräche erwies sich allerdings als sehr schwierig. Es entstand eine grosse Lücke zwischen der Generierung von Awareness und der Überführung in Einzelgespräche. Unser Learning ist dabei ganz klar, dass wir den Kunden enger und besser durch die virtuellen Messen führen müssen.

Der Vorteil von eigenen virtuellen Messen ist auch, dass wir die Daten unserer Kunden besser managen können als bei klassischen Hausmessen, die zudem auch die Digitalisierung stark vernachlässigt haben.

Nachhaltigkeit im B-to-B-Marketing

Für die Studierenden steht das Thema Nachhaltigkeit ganz oben auf der Agenda. Welche Entwicklungen gibt es diesbezüglich bei Bühler?



HOLENSTEIN Das Thema ist heute Kern unserer Unternehmensstrategie. Wir haben bei Bühler ein klares Commitment abgegeben, was wir erreichen möchten. Darin wird unterschieden in Scope 1 und 2, was wir selbst beeinflussen können – sowie Scope 3, d.h. entlang der gesamten Wertschöpfungskette der Kunden, die wir nur mittelbar beeinflussen können. Basierend auf 2019, liegen bei Stufe 1 und 2 unsere Commitments bei 60% CO₂-Reduktion bis 2030. Auch wenn wir Scope 3 nicht direkt messen können, streben wir auch hier eine hohe Nachhaltigkeit unserer Kunden an.

Wie stark wird Nachhaltigkeit in der Kommunikation genutzt?



BÖNDEL Wir wollen auf keinen Fall Greenwashing betreiben, weshalb wir auch kein 100% CO₂-Commitment abgeben. Es fließen sehr hohe Investitionen in die Forschung & Entwicklung, in Lösungen, Services und Partnerschaften in Richtung Nachhaltigkeit. Unser Credo ist, dass wir Nachhaltigkeit als wirtschaftlichen Treiber und nicht nur als ein Add-on sehen. Entsprechend ist es in unsere Unternehmensstrategie und in die Produktentwicklung eingebaut. Nachhaltigkeit muss sich auch wirtschaftlich lohnen, denn sonst funktioniert es langfristig nicht. Das kommunizieren wir in einer sehr sachlichen Art im typischen Bühler-Stil, der bodenständig und unaufgeregt ist.

Können Sie ein konkretes Beispiel nennen?



BÖNDEL Ein jüngeres Beispiel ist von einem unserer Kunden, der eine Kaffeerösterei in Norwegen in Betrieb genommen hat. Das ist die eine der ersten fast CO₂-freien Kaffeeröstereien, welche 85% weniger CO₂ ausstösst. In Indien haben wir eine andere Anlage in Betrieb genommen, bei der Mais und Mehl zu Tortilas mit 90% weniger Abwasser verarbeitet werden. In beiden Beispielfällen ging Nachhaltigkeit und wirtschaftlicher Erfolg Hand in Hand. Es ist wichtig zu verstehen, dass sich kaum ein Kunde für eine Lösung entscheiden wird, nur um den Footprint zu senken, dabei aber das Doppelte zahlt. Es muss sich für ihn schon auch wirtschaftlich lohnen. Wenn man aber aufzeigen kann, dass sich die nachhaltige Lösung gleichzeitig auch mittelfristig in ungefähr 2 Jahren wirtschaftlich lohnt, dann wird sich der Kunde dafür entscheiden.

Bei Dienstleistungen ist es systemimmanent, den Kunden zu integrieren, was eine grosse Prozessveränderung mit sich birgt. Wie gehen Sie mit Dienstleistungen bei Bühler um?



HOLENSTEIN Wir haben eine grosse strategische Initiative lanciert, die sich Apollo Value Services nennt und mit verschiedenen Ausbaustufen versehen ist. Die erste Stufe ist das traditionelle Geschäft mit den Komponenten und Ersatzteilen mit dem Ziel, die Transaktionskosten zu senken. Dafür haben wir myBühler lanciert, worüber sich die Kunden ihre Komponenten online bestellen können. Die zweite Stufe umfasst die Bühler Insights, eine zentrale Plattform für vernetzte Pro-

dukte und Services, mit der die Kunden die Effizienz ihrer Anlagen optimieren und den Instandhaltungsaufwand, Energieverbrauch und Verschleiss reduzieren können. Wir sind dabei, sogenannte Customer Centers aufzubauen, in denen die Daten der Anlagen in Echtzeit abgebildet werden. Damit können wir die Beratung des Kunden optimieren, wenn etwas nicht richtig funktionieren sollte. Die Daten müssen einen Mehrwert für den Kunden generieren, damit der Kunde diese auch nutzt. Daher arbeiten wir eng mit den Kunden zusammen und stellen sicher, dass sie durch die Daten ihren Prozess von Rohmaterial bis hin zu Produkt-Output verbessern können.

Für den Hersteller ergibt das natürlich auch gute Einsicht in die Daten des Kunden – er kann somit ein Benchmarking der Kunden machen. Sind die Kunden bereit, diese Daten zu teilen?



HOLENSTEIN Das war zu Beginn genau unsere Angst, dass die Kunden die Daten nicht teilen möchten. Aber sie sind dazu durchaus offen. Heute ist es so, dass auch renommierte Kunden ihre Daten teilen. Wir haben mit der Microsoft Cloud und Microsoft Azure eine Lösung, die sehr sicher für den Kunden ist. Insbesondere im wirtschaftlichen Umfeld ist es wichtig, dass Partner ihre Daten austauschen, damit wir voneinander lernen können.

Mit myBühler und Bühler Insights haben wir unsere Kunden viel besser verstehen gelernt und können noch bessere Lösungen für sie bieten. Wir erfahren heute Informationen über die Temperaturverteilung, Auslastung und vieles mehr. Die Daten fließen einerseits in die Produktentwicklung, andererseits auch in direktes Optimierungs-Feedback für den Kunden ein.



Quelle: © Bühler AG.

Rethinking Value Creation

in Brick-and-Mortar Retailing

Augmented reality (AR) is coming of age. Yet it remains unclear how AR will provide value to brick-and-mortar customers and firms. Based on 12 expert interviews, this article outlines how AR can facilitate value creation for brick-and-mortar customer journeys. Managers should be aware of such potentials but also anticipate related obstacles.

David Finken, M.Sc., Thomas Scheurer, M.Sc.

Mixed realities (MR) have evolved from a nascent technology – with initially inflated expectations – to a mature tool ready for mass market adoption (see Gartner Hype Cycle 2021 – Nguyen et al., 2021). In this decade, MR applications are expected to expand across industries, and leading business journals such as Forbes are motivating Chief Marketing Officers to consider experimenting with them (Evans, 2021). Augmented reality (AR), a fluent dimension on the virtuality continuum (see Milgram & Kishino, 1994; [see the online Appendix B](#)), projects virtual content onto a user’s physical environment in real time (Azuma et al., 2001). It differs from its more virtual brother, virtual reality (VR), where specific goggles create an immersive, fully computer-generated environment in which a user experiences a feeling of telepresence (Rauschnabel et al., 2022).

Porter and Heppelmann (2017) pointed out several aspects of how mixed reality, specifically AR, can create value for users in ways that have substantial managerial implications. In retail, AR is projected to grow at a compound annual growth rate of 20% during 2022–2028, resulting in a market size of USD 6.736,2 million by 2028 (Bloomberg, 2022; [see the online Appendix C](#) for an industry split). However, many retailers remain wary when it comes to implementing AR experiences. Among other aspects, the lack of existing use cases, uncertainty regarding development and maintenance expenses, and an unclear understanding of how AR may add value are some of the reasons for their concern (Chandukala et al., 2022).

This article outlines how the integration of AR can add value in the retail market. Specifically, we unveil value creation potentials for brick-and-mortar retail (B&M) and beyond. We categorize related potentials along the customer journey, present an updated customer journey framework (adapted from Court et al., 2009), and identify obstacles to the proliferation of AR in B&M.

Overall, and assuming the technology can overcome several structural obstacles, our framework identifies and validates four customer journey stages: capturing initial attention; assisting consumer decision-making before or during a purchase; establishing trust and generating conversions; and providing location-independent after-sales services (figure 1).

Proliferation of Augmented Reality Applications

In some countries, more than 50% of consumers have already engaged with mixed reality applications enabled by AR technology, predominantly for entertainment (e.g., Pokémon Go), brand engagement (e.g., Snapchat’s face filters), information retrieval (e.g., Peak Finder or AR navigation), and 15% of



David Finken, M.Sc.

Research Assistant, PhD Candidate and Lead Swiss Consumer Studies at the University of Lucerne, Switzerland and Visiting Scholar at the University of Michigan, Ann Arbor, MI, USA
david.finken@unilu.ch

Thomas Scheurer, M.Sc.

Research Assistant and PhD Candidate at the University of Lucerne, Switzerland
thomas.scheurer@unilu.ch

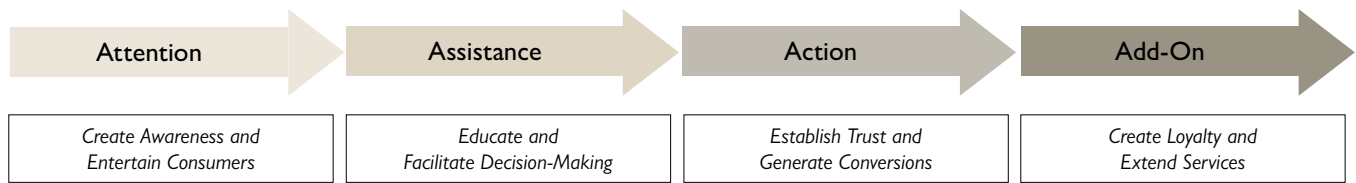
Acknowledgements

The authors declare that no conflict of interest exists. This study was supported by the Swiss National Science Foundation and is part of both authors’ doctoral dissertations. All companies mentioned herein were chosen arbitrarily and only for the purpose of giving examples.

consumers have used AR in shopping experiences (Finken et al., 2021). In the United States, 61% of consumers prefer to shop with retailers (online and B&M) that offer AR experiences (Nielsen, 2019). Popular examples include AR applications in which consumers can virtually wear different sunglass models (e.g., Ray-Ban), try make-up filters (e.g., Sephora), or position furniture within their homes (e.g., IKEA Place App). Augmented reality has also been used in recent advertisement campaigns, for example, to generate leads (e.g., Spar’s Easter egg search) or to promote new product launches with shareable and memorable user experiences (e.g., Jurassic World AR App). Consumers seem to value AR’s ability to reduce uncertainty, facilitate decision-making, or simply entertain them during shopping (Chandukala et al., 2022).

Yet, little is known about AR’s potential in B&M customer journeys (Dekimpe et al., 2020), such as AR technology that can enable in- and out-of-store navigation (e.g., Marks and Spencer), display additional information for products or services offered at B&M stores (e.g., H&M’s smart mirrors), or enable virtual menu inspections in restaurants (e.g., Le Petit Chef) (figure 2).

Figure 1: Simplified Illustration of the Value Creation Framework for Brick-and-Mortar Retail



Source: Own illustration.

Figure 2: Augmented Reality Applications for Marketing and Sales



Source: Own illustration.

Academic Research Provides Insights for Value Creation

Existing research has primarily focused on how AR can affect marketing outcomes in online retailing (e.g., conversion rate, word of mouth, intentions, attitudes, and willingness to pay; Kumar, 2021). Corresponding research has compared AR to more traditional presentation formats (e.g., static or 360-degree rotating product depictions) leading to insights on how AR can create value from three angles: *experiential, informational, and/or transactional*.

Experiential Value

Augmented reality allows for joyful product or brand engagement, affecting purchase intentions (Smink et al., 2019). In some

cases, AR experiences can even create flow moments (i.e., a cognitive state of control and concentration during an activity), which might explain positive consumer reactions (Csikszentmihalyi, 1975; Javornik et al., 2016). Enjoyment and flow may explain why consumers tend to engage 20% longer on websites that offer AR experiences and view 1.3 times more products in AR. Further, in B&M stores, consumers spend approximately 50% more time at the AR sampling fixtures for lipstick try-ons and sample 7.5 times more products (Tan et al., 2022).

In addition, AR facilitates connections between consumers and products. Research found that AR can affect psychological ownership (i.e., consumers' feeling that something is *theirs* in a psychological sense, without legally owning it) (Pierce et al., 2003; Peck and Shu, 2009). Some studies attribute this effect to specific AR configurations (e.g., level of customization or degree of interactivity; Carrozzi et al., 2019; Fritz et al., 2019),

whereas others report that AR makes consumers feel psychologically closer to products, since it makes products appear more real, thus increasing perceived ownership (Finken et al., 2021). Consequently, a large body of consumer research is dedicated to the consequences of this feeling of ownership, such as increased willingness to pay, or improved intentions and attitudes, which all make it a desirable outcome for marketers (e.g., Atasoy & Morewedge, 2018; Shu & Peck, 2011).

Informational Value

Augmented reality product placement helps consumers imagine what a product looks like and generates mental images of using the product, thus reducing consumer cognitive effort (and uncertainty) in product evaluation (Heller et al., 2019). Such mental images increase consumer desire and purchase intentions (Fritz et al., 2019; Hilken et al., 2022). For example, Fritz et al. (2019) showed that consumers are twice as likely to order a dessert at a restaurant if they encounter an AR menu versus a traditional menu.

Despite promising results, it is critical to design consumer-centric AR. For example, a field study by Hoffmann et al. (2022) revealed that the provision of product information at the point of sales can backfire if product information is too detailed, i.e., focused too little on consumer needs. Additionally, AR is less effective if product information is too intense (i.e., invasive). Thus, firms should find a good balance between AR engagement and product information intensity (Schweiger et al., 2022).

Transactional Value

As retailers increasingly maintain offline and online presences, they are confronted with the challenging task of providing seamless omnichannel experiences. Gauri et al. (2021) proposed that retailers either enhance consumer experiences or reduce friction in shopping processes to engage efficiently with consumers in an omnichannel setting. Augmented reality can reduce friction – and create transactional value for retailers – in several ways: it can create a natural link between offline and online shopping environments, enable one-click purchases (e.g., ApplePay and GooglePay), and it proves to be an efficient tool for reducing costs associated with product returns, both for online and physical retail (Wedel et al., 2020). Recent academic insights show that virtual try-ons in retail (e.g., for cosmetics) increase product sales by 19.8%. Importantly, research found that AR's impact on sales is lower for inexpensive products and popular brands (Tan et al., 2022).

Augmented reality's transactional value can depend on where the consumer inspects a product (i.e., whether this matches

the physical environment in which the product is used). For example, Finken et al. (2022) showed that AR specifically helps products when they are placed in a more fitting environment, such as inspecting a Thermomix in a kitchen (vs. a train, for example).

Value Creation Framework for Brick-and-Mortar Retail

Based on academic insights and expert interviews, the present article conceptualizes the *4-A Value Creation Framework* for B&M (figure 3). This framework showcases managerial potential for value creation at various stages of the customer journey. It conceptualizes potentials in four partly interconnected stages: capturing attention, assisting in decision-making, motivating to act, and adding value beyond the moment of purchase.

We validated and extended this framework with 12 expert interviews involving neutral external perspectives, managers from retail cooperations, and technology suppliers (see Appendix A below at the end of this article) for an anonymized overview of the experts). Experts were identified through purposive and snowball sampling methods (Adams, 2015; Marshall, 1996). The interviews followed a laddering method (Reynolds & Gutman, 1988) with semi-structured questions allowing for flexibility during the interview process (i.e., exploration of new areas; Gill et al., 2008). We used an inductive qualitative approach to generalize four phenomena from specific responses in the interviews (Mayring, 2012).

Attracting Attention

Retailers can implement out-of-store AR experiences that increase awareness for specific promotions by actively engaging

Management Summary

Augmented reality can create experiential, informational, and transactional value for consumers along the various stages of the customer journey. Summarizing insights from 12 expert interviews and prior research, this article presents the 4-A Value Creation Framework for brick-and-mortar retail. This framework implies that AR-based value creation comes with various potentials exceeding pure sales. Managers need to start experimenting with AR and anticipate obstacles to implementing AR.

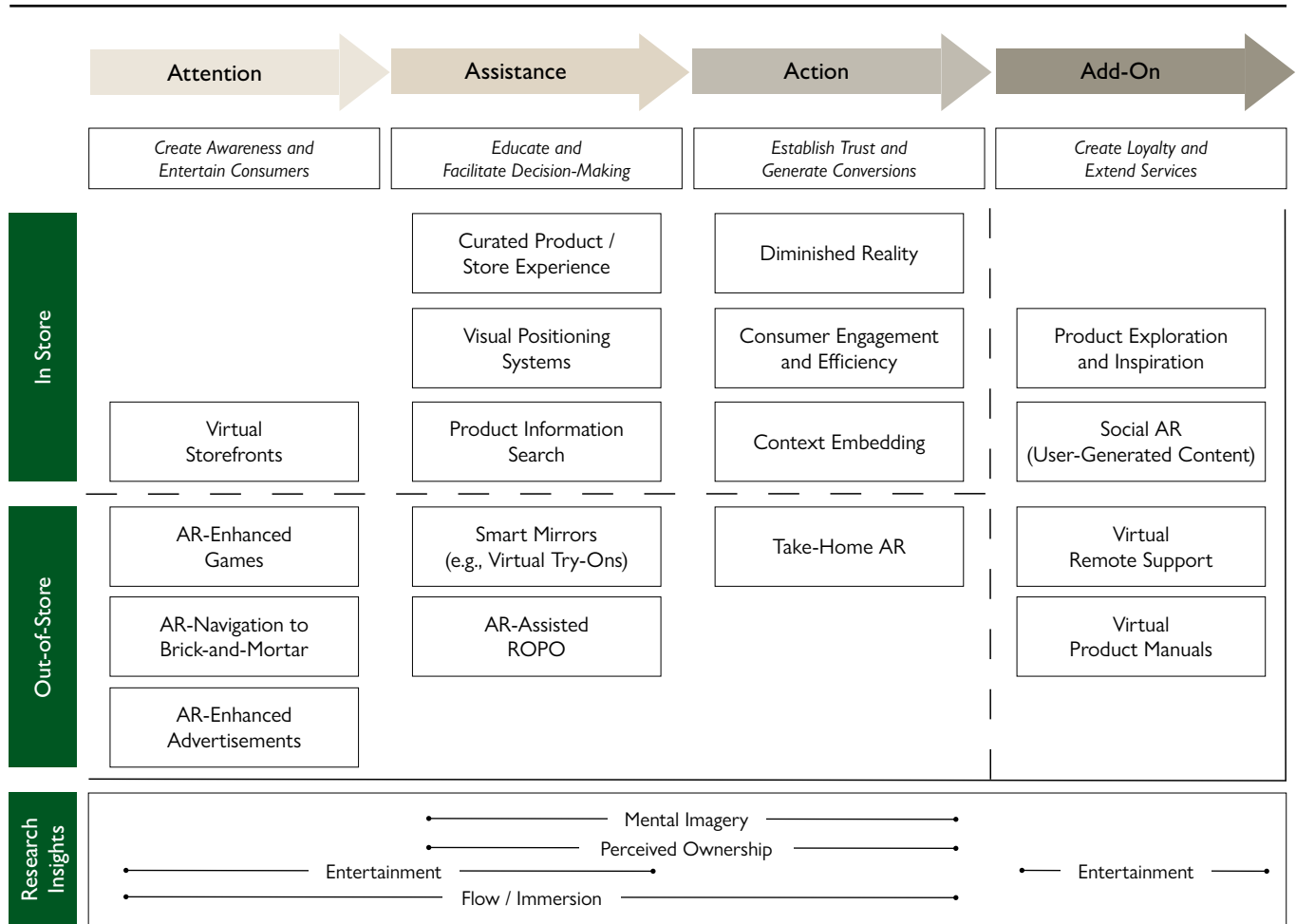
with consumers and guiding them in a joyful but active way to visit a B&M store. For example, retailers can use «augmented» advertisements with location-based services (e.g., Spar's Easter egg search) or AR-assisted global localization tools (e.g., Zurich Airport). Specific location-based AR services can facilitate convenience and guide consumers to B&M retail storefronts, increasing engagement and adoption while being cost-efficient and relatively easy to implement. Consumers indicated that brands are perceived as more exciting, fun, and innovative, and managers emphasize that AR's value also relates to being perceived as a first mover.

Augmented reality can also increase awareness of product portfolios in retailers' stores. For example, virtual storefronts (e.g., H&M's interactive mirrors) offer retailers maximum control over

Main Propositions

- 1 AR displays virtual objects onto people's real physical environment, creating informational, experiential, and transactional value for consumers
- 2 AR can affect the customer journey at various stages with both short-term and long-term potentials.
- 3 AR's proliferation requires a better understanding of various obstacles to its adoption.
- 4 AR implementation and testing require an open culture and willingness to experiment.

Fig. 3. 4-A Value Creation Framework for Brick-and-Mortar Retail



Please note: Additional information on terminologies is available upon request. Source: Own illustration (customer journey sequence adapted from Court et al., 2009).

what consumers see and perceive of a brand inside B&M stores. Customizable and tailored content can be displayed, creating interactive experiences that leverage the physical environment of the consumer and offer initial product information. First insights indicate that such AR interactions increase consumer engagement and sales (Business Wire, 2017). However, managers point out that such virtual storefronts need a clear purpose beyond entertainment to attract consumers effectively.

Assisting in Decision-Making

Augmented reality can provide information about brands, products, and services in B&M stores, similar to but distinct from existing use cases in retailing. Augmented reality's value in B&M retail depends on the type of information that consumers are looking for during product or service evaluation.

Augmented reality can help consumers navigate their in-store shopping with visual positioning systems. Such AR-based in-store (and out-of-store) navigation gives consumers an efficient and time-saving way to access the product or service of interest. According to research reports, 60% of consumers indicated that such a use of AR would be important to them and they could imagine using such tools (Ducommun et al., 2021; Finken et al., 2021). Meanwhile, businesses can leverage visual positioning systems to create up- and cross-selling opportunities. For example, Marks & Spencer experimented with a real-time display of loyalty points and bundled deals for product purchases tied to its in-store navigation app.

In-store AR cannot yet replace a physical product experience, but it can complement such experiences and overcome a key disadvantage of B&M: space constraints. Augmented reality can provide additional, overlaid information that facilitates decision-making and enhances a self-brand/product connection (Zimmermann et al., 2022). Today, 59% of consumers use their

smartphones to access more product information or compare prices in B&M stores (Google/Ipsos, 2019).

At the same time, managers believe AR can improve the overall customer store experience and support the efficiency of store inventory management, especially for products available in several variations. Retailers can display their most prominent products and focus on curated multisensory product experiences while giving consumers more AR-enabled alternatives, such as alternative product colors or individualized options, without an additional physical inventory.

Invitation to Take Action

Store visits or e-commerce alone can seldom provide all the information consumers need to make the best possible purchase decision. Augmented reality allows access to the «inner parts» of products without disassembling them (i.e., diminishing reality as opposed to AR). For example, AR-related technology enables the real-time inspection of engines during a motor show.

In-store AR cannot yet replace a physical product experience, but it can overcome a key disadvantage of B&M: space constraints.

Augmented reality can bridge the gap between informational and experiential retail encounters, leading to seamless interactions and, ultimately, higher purchase likelihood (Hilken et al., 2020). Specifically, products often need context to be evaluated appropriately, and AR can virtually overlay appropriate use contexts for products, helping consumers imagine what a product would look like in its proper environment (e.g., a

Lessons Learned

- 1 Bottom-up AR implementation, with minimal upper management involvement, provides small financial risks, enables departments to experiment, and may provide information about KPIs.
- 2 AR may reduce friction along various points in the customer journey by serving as a natural link between offline and online consumer touchpoints, which allows for seamless omnichannel experiences.
- 3 Successful AR implementations address concrete (i.e., informational, experiential, and transactional) user needs and depend on continuous employee training as well as a technology-embracing firm culture.
- 4 A major impediment to adopting AR in business strategies is a limited understanding of how to effectively track KPIs, which requires managers to think of AR as a tool creating transactional value.

Thermomix in one’s kitchen). Third, managers predict that AR’s value may exceed a single store visit. With high-involvement goods, consumers can take virtual products to their homes while getting more comfortable with their decision (i.e., take-home AR; research offline – purchase online). Alternatively, some consumers prefer out-of-store product experiences (e.g., virtual try-ons) before making an in-store purchase (research online – purchase offline). An international sunglasses retailer predicts that half of all consumers who inspect complex products with AR online will subsequently visit a physical store.

Managers indicated in our interviews that AR could facilitate a more seamless omnichannel experience and increase convenience by enabling direct in-store purchases through connected services (e.g., Apple Pay in ARKit). In turn, the vast number of data points (i.e., biometric and individual-level data) gathered through AR shopping assistants offers potentials for retailers for personalized or geo-specific product recommendations (under strict considerations of GDPR).

Add-on Value

Customer service quality and perceived value after purchases are two additional drivers of customer satisfaction and loyalty (Kuo et al., 2009). The interviewed experts stated that AR has the potential to create value that exceeds the value of actual sales. For example, AR can assist consumers in assembling products (e.g., IKEA’s <AssembleAR>) and offer real-time troubleshooting with virtual instruction manuals or remote customer support

(e.g., <V-Zug Docs> or <feey.ch>). Consequently, AR may reduce consumer complaints and returns. Regarding remote support, AR can enable consumers to become part of the creation process by being guided by a professional, with positive implications for marketing (see Ranjan & Read, 2016). It may also contribute to extending a product’s lifecycle by making repairs more convenient.

AR can also help consumers explore different uses of their products. For example, Heinz implemented an AR recipe recommender to inspire consumers to try unknown products or ingredients. Consumer awareness of such complementary products during and after a product purchase may increase short-term up- and cross-selling potentials for retailers and long-term brand engagement on social media.

Similarly, facilitating brand interactions on social media (e.g., Tiktok, Snapchat, or Instagram) by allowing consumers to share AR-generated content with peers (i.e., social AR) is likely to enhance self-brand connections and recognition (especially when consumers are depicted on brand selfies; Hofstetter et al., 2020).

Obstacles to the Proliferation of AR

Proliferation of AR comes with challenges: managers highlight various obstacles that are both internally and externally routed. In this context, technical, managerial, cultural, and ethical obstacles should be anticipated and addressed before AR implementation (figure 4). Managers believe that the proliferation of AR largely depends on consumer readiness to embrace AR.

Technological Obstacles

Seamless AR experiences require technological advancements to be available to consumers and businesses (see [online Appendix D](#)). While some consumer devices are well-equipped to display AR content, businesses need to be aware that realistic and smooth AR experiences may require technologies that not all consumers are equipped with (e.g., Apple LiDAR sensors). In addition, firms must keep in-store hardware and software as well as AR infrastructure up to date and train employees for AR usage and maintenance.

However, developing an AR app from scratch can be expensive. While relying on open-source infrastructure may ease such large investments, it increases a firm’s dependency on tech giants (e.g., Apple’s ARKit or Google’s ARCore), and some managers fear that relying on the tech giants’ infrastructure could make them vulnerable in the long term. However, compared to the obstacles explained below, managers perceive technical ones as least critical when implementing AR experiences.

Figure 4: Obstacles to Augmented Reality Proliferation

Technological	<ul style="list-style-type: none"> • Dependency on Large Tech-Companies • Fitting Infrastructure for Implementation • Hardware Availability and Compatibility
Managerial & Cultural	<ul style="list-style-type: none"> • Uncertain Financial Involvement • Undefined Key Performance Indicators (KPI) • Organizational Culture and Employees’ Digital Literacy
Ethical	<ul style="list-style-type: none"> • General Data Protection Regulations (e.g., Biometric and Individual-Level Data) • Reality Distortion • Biased Decision-Making
Consumer-Adoption	<ul style="list-style-type: none"> • Explicit User Permissions (e.g., Camera, Audio, Location) • Technological Proliferation and Literacy • Loss of Interpersonal Contact

Source: Own illustration.



Source: © iStockphoto.

Managerial and Cultural Obstacles

Augmented reality poses several managerial challenges related to costs, measurement of key performance indicators, and employee resistance to adoption. Firms often do not know what kind of resources an AR undertaking requires. Generally, large investments, including profitable business cases, require management involvement. Calculating the AR business case is a difficult undertaking due to unclear or partly missing AR-specific KPIs and short- and long-term financial involvement (e.g., AR maintenance costs). Bottom-up AR implementation requires less financial involvement, making it accessible for small businesses. Typical examples are AR marketing campaigns on Snapchat.

Firms need to establish a progressive and open culture willing to experiment with new technologies. Most importantly, the implementation of AR in B&M retail should not generate fear amongst sales assistants of being replaced by technology

but instead offer promising opportunities. This is essential since consumers value personal interactions with sales assistants (Beatty et al., 1996). Consequently, proper training and a culture that embraces digital literacy are needed for AR opportunities to unfold.

Ethical Obstacles

AR yields a large amount of sensitive consumer data. For virtual try-ons in particular, businesses need to measure consumer biometrics and gather additional individual data. Since consumers regularly have to consent to data collection in online retailing, it is imperative for businesses to follow GDPR protocols in B&M retailing and be transparent about data usage and storage.

As AR applications grow increasingly more complex and sophisticated, retailers face the risk of misleading customers and distorting their reality (Mhaidli & Schaub, 2021). In such

cases, AR has the potential to exploit consumer psychology to increase sales. For example, recent research suggests that AR can increase perceived ownership and attachment to products, which in turn leads to more favorable product preferences and sales (Finken et al., 2022). This may boost sales in the short time but might lead to image problems and other repercussions in the long run.

Consumer Adoption

Although a variety of consumers have already engaged with mixed reality applications such as AR, its proliferation for marketing and sales is still in its infancy. Experts emphasize that AR's success depends on clear communication of its value potential to satisfy context-specific consumer needs. Since AR applications need access to a mobile device's camera, often the current location of the consumer, and/or audio output features, a primary obstacle to consumer adoption is related to privacy concerns. An additional concern is related to the consumers' fear of losing interpersonal contact in B&M retail, which is essential for in-store shopping.

Conclusions and Outlook

Taken together, mixed reality applications enabled by AR may come with a variety of experiential, informational, and transactional benefits, not only for online retailing but specifically for B&M shops. Brick-and-mortar retailing's implementation of AR should be aligned with its overall short- and long-term omnichannel strategy. To unlock AR's full potential, firms need to build close connections between online and B&M channels and eventually purely virtual experiences in the metaverse. ■

References

- Accenture. (2019). Waking up to a new reality – G20 Young entrepreneurs' alliance report. https://www.accenture.com/_acnmedia/centricity/asset-rendition-assets/dotcom/documents/global/1/accenture-g20-yea-report.pdf
- Adams, W. C. (2015). Conducting semi-structured interviews. In K. E. Newcomer, H. P. Hatry, J. S. Wholey (Eds.), *Handbook of practical program evaluation*, (4th ed., pp. 492–505). Wiley.
- Atasoy, O., & Morewedge, C. K. (2018). Digital goods are valued less than physical goods. *Journal of Consumer Research*, 44(6), 1343–1357.
- Azuma, R., Baillet, Y., Behringer, R., Feiner, S., Julier, S., & MacIntyre, B. (2001). Recent advances in augmented reality. *IEEE Computer Graphics and Applications*, 21(6), 34–47.
- Beatty, S. E., Mayer, M., Coleman, J. E., Reynolds, K. E., & Lee, J. (1996). Customer–sales associate retail relationships. *Journal of Retailing*, 72(3), 223–247.
- Bloomberg (2022, June 22). Augmented and virtual reality (AR & VR) Market to reach USD 454.73 billion by 2030 with a CAGR of 40.7% | Valuates Reports. <https://www.bloomberg.com/press-releases/2022-06-22/augmented-and-virtual-reality-ar-vr-market-to-reach-usd-454-73-billion-by-2030-with-a-cagr-of-40-7-valuates-reports>
- Business Wire (2017, April 13). Smart mirrors market – trends and forecasts by Technavio. <https://www.businesswire.com/news/home/20170413005215/en/Smart-Mirrors-Market--Trends-and-Forecasts-by-Technavio>
- Carrozzi, A., Chylinski, M., Heller, J., Hilken, T., Keeling, D. I., & de Ruyter, K. (2019). What's Mine is a hologram? How shared augmented reality augments psychological ownership. *Journal of Interactive Marketing*, 48, 71–88.
- Chandukala, S. R., Tan, Y. C., & Reddy, S. K. (2022, March 29). How augmented reality can – and can't – help your brand. *Harvard Business Review*. <https://hbr.org/2022/03/how-augmented-reality-can-and-cant-help-your-brand>
- Csikszentmihalyi, M. (1975). *Beyond boredom and anxiety: Experiencing flow in work and play*. Jossey-Bass.
- Court, D., Elzinga, D., Mulder, S., & Vetvik, O. J. (2009, June 1). The consumer decision journey. McKinsey & Company. <https://www.mckinsey.com/business-functions/marketing-and-sales/our-insights/the-consumer-decision-journey>
- Dekimpe, M. G., Geyskens, I., & Gielens, K. (2019). Using technology to bring online convenience to offline shopping. *Marketing Letters*, 31(1), 25–29.
- Ducommun, C., Gandhi, S., Fried, C., & Portell, G. (2021, July 15). Retailers are ignoring consumer expectations around retail technology. *Kearney*. <https://www.kenarney.com/consumer-retail/article/-/insights/retailers-are-ignoring-consumer-expectations-around-retail-technology>
- Evans, G. (2021, January 14). 2021 – CMOs, it's time to take augmented reality (AR) more seriously than ever according to poplar studio. *Forbes*. <https://www.forbes.com/sites/drgeraintevans/2021/01/14/2021--cmos-its-time-to-take-augmented-reality-ar-more-seriously-than-ever-according-to-poplar-studio/?sh=294df0e2add>



Source: © iStockphoto.

Finken, D., Gorny, M., Hofstetter, R., Fankhauser, L., Waibel, R., & Schroetter, S. (2021). Swiss Augmented Reality Barometer 2021. Institute of Marketing and Analytics, University of Lucerne.

Finken, D., Hofstetter, R., Krishna, A., & Wangenheim, F. (2022). Context even matters in virtuality: Perception of object proximity and ownership in augmented reality. In T. W. Bradford, A. Keinan, & M. M. Thomson (Eds.), *Advances in consumer research*, Vol. 49, pp. 282–283. Association for Consumer Research.

Fritz, W., Hadi, R., & Stephen, A. (2019). A feast for the eyes: How augmented reality influences food craving and evaluation. In R. Bagchi, L. Block, & L. Lee (Eds.), *NA – advances in consumer research* (Vol. 47, p. 969). Association for Consumer Research.

Gauri, D. K., Jindal, R. P., Ratchford, B., Fox, E., Bhatnagar, A., Pandey, A., Navallo, J. R., Fogarty, J., Carr, S., & Howerton, E. (2021). Evolution of retail formats: Past, present, and future. *Journal of Retailing*, 97(1), 42–61.

Gill, P., Stewart, K., Treasure, E., & Chadwick, B. (2008). Methods of data collection in qualitative research: Interviews and focus groups. *British Dental Journal*, 204(6), 291–295.

Google/Ipsos. (2019, February). Global Retail Study Consumer Trends. <https://www.thinkwithgoogle.com/consumer-insights/consumer-trends/in-store-smartphone-research-statistics>

Heller, J., Chylinski, M., de Ruyter, K., Mahr, D., & Keeling, D. I. (2019). Let me imagine that for you: Transforming the retail frontline through augmenting customer mental imagery ability. *Journal of Retailing*, 95(2), 94–114.

Hilken, T., Heller, J., Keeling, D. I., Chylinski, M., Mahr, D., & de Ruyter, K. (2022). Bridging imagination gaps on the path to purchase with augmented reality: Field and experimental evidence. *Journal of Interactive Marketing*, 57(2), 356–375.

Hilken, T., Keeling, D. I., de Ruyter, K., Mahr, D., & Chylinski, M. (2020). Seeing eye to eye: Social augmented reality and shared decision making in the marketplace. *Journal of the Academy of Marketing Science*, 48(2), 143–164.

Hoffmann, S., Joerß, T., Mai, R., & Akbar, P. (2022). Augmented reality-delivered product information at the point of sale: When information controllability backfires. *Journal of the Academy of Marketing Science*, 50, 743–776.

Hofstetter, R., Kunath, G., & John, L. K. (2020). From sweetheart to scapegoat: Brand selfie-taking shapes consumer behavior. *Harvard Business School Working Paper # 20-085*.

Javornik, A. (2016). It's an illusion, but it looks real! Consumer affective, cognitive and behavioural responses to augmented reality applications. *Journal of Marketing Management*, 32(9-10), 987–1011.

Kumar, H. (2021). Augmented reality in online retailing: A systematic review and research agenda. *International Journal of Retail & Distribution Management*, 50(4), 537–559.

Kuo, Y. F., Wu, C. M., & Deng, W. J. (2009). The relationships among service quality, perceived value, customer satisfaction, and post-purchase intention in mobile value-added services. *Computers in Human Behavior*, 25(4), 887–896.

Marshall, M. N. (1996). Sampling for qualitative research. *Family Practice*, 13(6), 522–526.

Mayring, P. (2012). *Qualitative Inhaltsanalyse – ein Beispiel für Mixed Methods. Mixed Methods in der empirischen Bildungsforschung*, 1, 27–36.

Mhaidli, A. H., & Schaub, F. (2021, May). Identifying manipulative advertising techniques in XR through scenario construction. In *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems* (pp. 1–18).

Milgram, P., & Kishino, F. (1994). A taxonomy of mixed reality visual displays. *IEICE TRANSACTIONS on Information and Systems*, 77(12), 1321–1329.

Nielsen. (2019, December 12). Augmented reality: The new consumer reality. NielsenIQ. <https://nielseniq.com/global/en/insights/analysis/2019/augmented-retail-the-new-consumer-reality-2/>

Nguyen, T., Gupta, A., Ingelbrecht, N., Jump, A., Cozza, R., Ray, B., Chauhan, K., & Baghdassarian, S. (2021). Emerging technologies: Emergence cycle for augmented reality. Gartner. <https://www.gartner.com/en/documents/4002860>

Peck, J., & Shu, S. B. (2009). The effect of mere touch on perceived ownership. *Journal of Consumer Research*, 36(3), 434–447.

Pierce, J. L., Kostova, T., & Dirks, K. T. (2003). The state of psychological ownership: Integrating and extending a century of research. *Review of General Psychology*, 7(1), 84–107.

Porter, M. E., & Heppelmann, J. E. (2017). Why every organization needs an augmented reality strategy. *Harvard Business Review*, 95(6), pp. 46–57.

Ranjan, K. R., & Read, S. (2016). Value co-creation: Concept and measurement. *Journal of the Academy of Marketing Science*, 44(3), 290–315.

Rauschnabel, P. A., Felix, R., Hinsch, C., Shahab, H., & Alt, F. (2022). What is XR? Towards a framework for augmented and virtual reality. *Computers in Human Behavior*, 133, 107289.

Reynolds, T. J., & Gutman, J. (1988). Laddering theory, method, analysis, and interpretation. *Journal of Advertising Research*, 28(1), 11–31.

Shu, S. B., & Peck, J. (2011). Psychological ownership and affective reaction: Emotional attachment process variables and the endowment effect. *Journal of Consumer Psychology*, 21(4), 439–452.

Smink, A. R., Frowijn, S., van Reijmersdal, E. A., van Noort, G., & Neijens, P. C. (2019). Try online before you buy: How does shopping with augmented reality affect brand responses and personal data disclosure. *Electronic Commerce Research and Applications*, 35, 100854.

Schweiger, E. B., Ahlbom, C. P., Nordfält, J., Roggeveen, A. L., & Grewal, D. (2022). In-store endcap projections and their effect on sales. *Journal of Retailing*, advance online publication, <https://doi.org/10.1016/j.jretai.2022.06.004>

Tan, Y. C., Chandukala, S. R., & Reddy, S. K. (2022). Augmented reality in retail and its impact on sales. *Journal of Marketing*, 86(1), 48–66.

Wang, K., & Goldfarb, A. (2017). Can offline stores drive online sales? *Journal of Marketing Research*, 54(5), 706–719.

Wedel, M., Bigné, E., & Zhang, J. (2020). Virtual and augmented reality: Advancing research in consumer marketing. *International Journal of Research in Marketing*, 37(3), 443–465.

Zimmermann, R., Mora, D., Cirqueira, D., Helfert, M., Bezbradica, M., Werth, D., Weitzl, W. J., Riedl, R., & Auinger, A. (2022). Enhancing brick-and-mortar store shopping experience with an augmented reality shopping assistant application using personalized recommendations and explainable artificial intelligence. *Journal of Interactive Marketing*, advance online publication, <https://doi.org/10.1108/JRIM-09-2021-0237>



Weitere ergänzende Grafiken zum Artikel finden Sie unter: unisg.link/MRSG-Finken-Scheurer

Appendix A: Overview of Conducted Expert Interviews

Overview – Interview partners for in-depth interviews

Interview Group	No. of experts	Explanation	Positions
External perspective	3	Business consultants or university professors	Partner or professors
Retailer's perspective	7	Brick-and-mortar or omnichannel retailers	Head of marketing / head of e-commerce / product manager
Supplier's perspective	2	Technology suppliers responsible for developing AR technology	Founder or CEO
Total	12		

We conducted 12 semi-structured in-depth interviews according to recent scientific standards (Mayring, 2012). Interviews were conducted in May and June 2022. Interview partners had direct budget responsibility for setting up AR for their company or worked as an external knowledge provider informing stakeholders.

Note. We interviewed 2 female and 10 male managers. Brick-and-mortar or omnichannel interview partners from FMCG (brands and retailers), sport retailing, and more general retailing including household products. Source: Own illustration.

Believe the Hype?

Herausforderungen und
Herangehensweisen an das
«Metaverse»

Das Thema «Metaverse» stellt das Marketing und Führungskräfte vor neue Herausforderungen. Wenngleich die langfristigen Veränderungen kaum absehbar sind, wird im aktuellen Hype vieles ausprobiert und nur wenig erscheint dabei wirklich nachhaltig. Der Beitrag zeigt Ansatzpunkte für Unternehmen auf, wie sie bereits heute erste Lernprozesse im Metaverse sinnvoll anstossen können.

Prof. Dr. Marcus Schögel, Laura-Eve Grellmann, Severin Lienhard,
Prof. Dr. Dennis Herhausen

«When you begin to look at the global reach, the number of people that spend meaningful amounts of time in these new worlds, I think it provides a universe of opportunity.»

CEO Stephen Cooper
Warner Group (Agustin, 2021)

Rund um das Metaverse besteht aktuell eine Vielzahl an Diskussionen. Das einflussreiche Zitat verweist auf die neuen Opportunitäten. Die Anzahl und das explosionsartige Vermehren von Metaverse-Initiativen unterschiedlichster Unternehmen verdeutlicht die aktuelle Dynamik: Coca-Cola lancierte Coca-Cola Zero Sugar Byte im Metaverse und die Stadt Seoul ermöglicht ihren Bürgern sogar, Anfragen online an die Avatare von Beamten zu richten. Der Wert des Metaverse könnte Schätzungen zufolge bis 2030 bereits 5 Billionen Dollar betragen (Elmasry et al., 2022) und bietet damit einen weitreichenden Spielraum für Experimente und Innovationen.

Verschiedene Studien zeigen, dass Marketing-Führungskräfte nur sehr rudimentär mit dem Metaverse vertraut sind (Universität der Bundeswehr München, 2022). Zwischen technologischen Potenzialen und wirklichem Verständnis des Metaverse besteht ein gewisser Klärungsbedarf. Folgende Fragen scheinen dabei von besonderer Relevanz:

Welche Herausforderungen gibt es beim Metaverse zu beachten?

Welche Herangehensweisen können Marketing-Führungskräfte verfolgen, um vom Metaverse zu profitieren?

Um Antworten auf diese Fragen zu geben, wurden im Frühling dieses Jahres erste qualitative Untersuchungen gestartet. Die Ergebnisse einer Desk Research bestehender Initiativen, die Sichtung und Analyse der bestehenden Literatur nach Tranfield et al. (2003)¹ sowie ein Workshop mit CEOs und CMOs zu Umgangsszenarien mit dem Metaverse im Sommer dieses Jahres bilden die empirische Basis für unsere Ausführungen. Bei dem Workshop wurden im Rahmen eines Fünf-Schritte-Verfahrens¹ aktuelle Herausforderungen und mögliche Herangehensweisen diskutiert (Schögel et al., 2022). Breit abgestützte Inhalte fliessen in diesen Artikel ein.

Folgend werden als Erstes die konzeptionellen Grundlagen des Metaverse erfasst. Daraufhin werden die Herausforderungen für das Marketing beschrieben. Die Formulierung konkreter Handlungsfelder stellt Empfehlungen für einen möglichen Umgang mit dem Metaverse dar. Abschliessend werden die Ergebnisse zusammengefasst.

Das Phänomen «Metaverse» in der Literatur

Aus dem Prozess der Literaturanalyse konnten aus acht relevanten Beiträgen drei zentrale Perspektiven auf das Metaverse identifiziert werden.

Die erste Perspektive setzt sich mit *Herangehensweisen von Unternehmen* an das Metaverse auseinander. Dabei ist festzuhalten, dass bereits auf etablierte Tools wie Kundenbindungsprogramme oder Eventkonzepte bei den Unternehmen zurückgegriffen wird (Kovacova et al., 2022). Vor allem können aber von Unternehmen jüngere Zielgruppen erschlossen werden (Hollensen et al., 2022).

Der zweite Bereich der Ergebnisse umfasst die *Kundenperspektive und Mehrwerte*



Prof. Dr. Marcus Schögel
Professor am Institut für Marketing und Customer Insight
Universität St. Gallen (HSG)
marcus.schoegel@unisg.ch

Laura-Eve Grellmann
Wissenschaftliche Mitarbeiterin und Doktorandin am Institut für Marketing und Customer Insight
Universität St. Gallen (HSG)
laura-eve.grellmann@unisg.ch

Severin Lienhard
Berater bei Horvath & Partners im Sales, Marketing & Pricing
Horvath & Partner AG
slienhard@horvath-partners.com

Prof. Dr. Dennis Herhausen
Associate Professor für Marketing an der School of Business and Economics
Vrije Universiteit Amsterdam (VU)
dennis.herhausen@vu.nl

des Metaverse. Dabei besitzen Extended-Reality-Anwendungen das Potenzial für neue Mehrwerte. Insbesondere für Nutzer aus technologieaffinen Segmenten oder den mit «Generation Z» oder «Alpha» bezeichneten Kohorten lassen sich durch die Erweiterung, Delegation bzw. Substitution des eigenen Auftritts anhand von Avataren neue Nutzen dimensionen im Metaverse entwickeln. Fraglich dabei ist erstens noch das Wohlbefinden der Kundschaft in der virtuellen Welt, verglichen mit der physischen Welt. Weiterhin kommen Fragen rund um das Selbstwertgefühl auf (Dwivedi et al., 2022). Drittens wird hinterfragt, ob sich ein Generationenunterschied mit möglichen Konflikten auftun kann.

Zusammenfassung

Das Metaverse bietet Unternehmen eine Vielzahl an **Opportunitäten**. Marketing-Führungskräfte sind häufig noch wenig vertraut mit dem neuen Phänomen. Die im Text ausgearbeiteten Herausforderungen und Herangehensweisen helfen dabei, sich an das Metaverse heranzutasten. Die Herausforderungen zeigen die Komplexität der Thematik auf. Es sind viele Faktoren in der mittelfristigen Entwicklung noch unklar, genauso aber ist auch ein sofortiges Lancieren von Initiativen schwierig, da die Zugänglichkeit viel Eigenleistung benötigt. Vier Handlungsfelder dienen als Herangehensweise für Marketing-Führungskräfte: Inspiration und Kennenlernen des Marktes, Zugänglichkeit erarbeiten und Partnerauswahl treffen, Mehrwerte schaffen und Einbettung in das Unternehmen und das Kanalsystem.

vernetzte Prozesse, digitale Mehrwerte entstehen. Damit sind dann die folgenden Dimensionen von besonderer Bedeutung.

Die im Metaverse angestrebte (1) **Interoperabilität** soll dazu dienen, dass ein nahtloses Zusammenarbeiten der technischen Systeme, genauso wie zwischen dem Metaverse und Nutzerinnen und Nutzer, stattfindet. Als weitere Eigenschaft lässt sich das virtuelle Kontinuum als sich in (2) **kontinuierlicher Bereitschaft** befindend beschreiben, da der Zugang jederzeit möglich ist. Es handelt sich um eine (3) **funktionierende Ökonomie**, für und in welcher unterschiedliche Zahlungsmethoden verwendet werden. Menschen können hier (4) **gleichzeitig partizipieren**, wodurch Verbundenheit über natürliche Grenzen hinweg geschaffen wird. Diese Interaktion findet in (5) **Echtzeit** statt, wobei Nutzerinnen und Nutzer über eine hohe (6) **Autonomie** verfügen, da beispielsweise die Zeit und das Aussehen frei gewählt werden können. Allerdings stellen die (7) **Sicherheit** sowie **Privatsphäre** der Nutzerinnen und Nutzer eine besondere Herausforderung dar, da hier bisher keine klaren Regelungen existieren. Weiterhin klassifiziert die Verwendung des Metaverse die (8) **Immersion** in die aufgezeigte, virtuelle

Die letzte Perspektive erfasst Untersuchungen im Bereich der *Veränderung der Marktlandschaft*. Dazu gehören die Fragen, wie Avatare mit ihrem Umfeld umgehen und welche Nutzungen sich generell ergeben (Dwivedi et al., 2022).

sich diese Sichtweise als relativ plastisch, jedoch finden sich darin kaum Aussagen zu den Inhalten und dem Kontext der Einsatzmöglichkeiten. Zudem erweitern sich die Potenziale und Eigenheiten des Metaverse durch aktuelle Initiativen von Unternehmen dynamisch. Daher erweist es sich als sinnvoll, das Metaverse als mehrdimensionales Kontinuum verschiedener digitaler Gestaltungsdimensionen zu interpretieren, um Nutzerinnen und Nutzern einen erweiterten Erfahrungsraum zu bieten, indem durch den Einbezug von verschiedenen Parteien, Plattformen, Infrastrukturen, relevanten Inhalten und durch

Weiterhin sind Beiträge zu finden, die versuchen, den Begriff des «Metaverse» fassbar zu machen. Lee et al. (2021) beschreiben das Metaverse beispielsweise als «A virtual environment blending physical and digital, facilitated by the convergence between the Internet and Web technologies, and Extended Reality (XR)». Zwar erweist

Abb. 1: Grundlegende Eigenschaften des Metaverse



Quelle: Eigene Abbildung in Anlehnung an Park & Kim, 2022; Baron, 2022; Dwivedi et al., 2022.

Umgebung, wobei (9) die digitale und die physische Welt verbunden werden. Genutzt wird hierfür zum Beispiel Augmented Reality bzw. Virtual Reality. Einen Ansatz für die Verbindung beider Welten liefern beispielsweise «Digital Twins», da hierbei Einheiten digital repräsentiert werden können. Abschliessend lässt sich das Metaverse dadurch beschreiben, dass (10) grenzenlose Inhalte bzw. Erfahrungen erlebt werden, die die Partizipation in der physischen Welt erweitern, welches unter anderem durch die Nutzung von Avataren möglich ist. Es wird deutlich, dass das Metaverse zum aktuellen Zeitpunkt nicht ein spezifischer Raum ist, sondern gleich mehrere Anwendungsmöglichkeiten existieren, die für alle Parteien zugänglich sind.

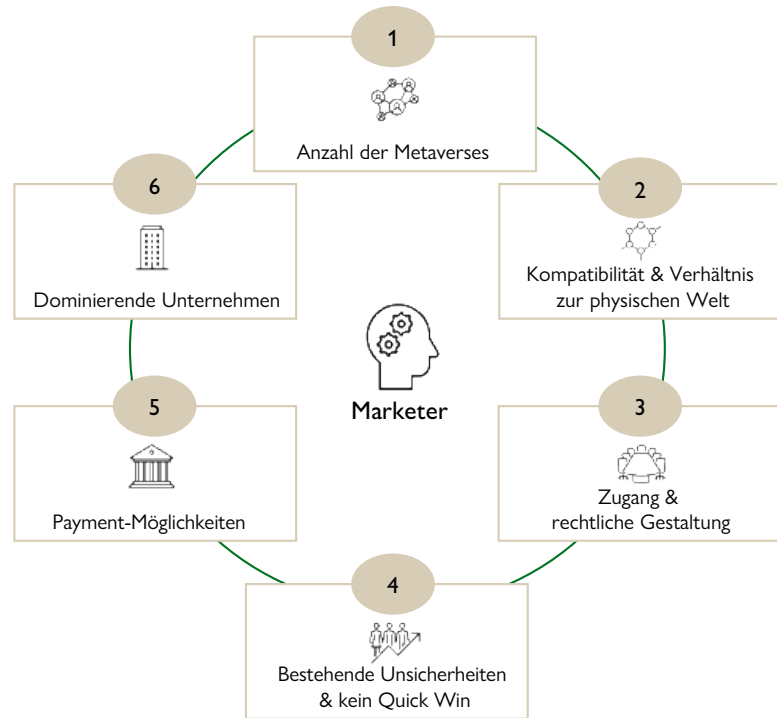
Herausforderungen und aktuelle Unsicherheiten

Basierend auf den Ergebnissen der Literaturrecherche und den Diskussionen in der Fokusgruppe, werden nachfolgend sechs Herausforderungen für Marketing-Führungskräfte im Umgang mit dem Metaverse entwickelt:

1. Grundsätzlich ist festzuhalten, dass nicht ein einziges Metaverse entstehen wird. Vielmehr sind verschiedene Metaverses im Aufbau. Das macht eine intensive Beschäftigung mit den einzelnen Metaverses notwendig. Dabei gilt es, klar zu beantworten, auf welchem Metaverse, durch welche Aktionen, welche Ziele erreicht werden wollen.
2. Eine zweite Herausforderung ergibt sich aus der (aktuell noch begrenzten) Kompatibilität zwischen verschiedenen «Entities»/Metaversen. Aktuell ist noch nicht klar, wie diese erreicht werden soll. Dies stellt einen bspw. vor die Frage, wie rasch sich einzelne Initiativen skalieren lassen. Genauso zentral ist es für viele Unternehmen zu verstehen, in welchem Metaverse sich Synergie-Effekte mit der physischen Welt generieren lassen.
3. Zudem sind für die potenziellen Nutzerinnen und Nutzer noch massgebliche Eintrittsbarrieren vorhanden. Wenngleich jüngere den technologischen Voraussetzungen oftmals offen gegenüberstehen, sind sich reifere Kundengruppen der Potenziale noch nicht bewusst bzw. stehen der vielfach notwendigen Hardware (VR-Set etc.) skeptisch gegenüber. Fehlender Tragekomfort führt zu Unwohlsein oder aber auch rascher Ermüdung. Hinzukommen bspw. datenschutzrechtliche Aspekte: Die Sicherheit der Nutzerinnen und Nutzer, bzw. der Umgang mit den Nutzerdaten, ist bisher noch ungeklärt. Es gilt Mechanismen zu finden, um Missbrauch vorzubeugen und entsprechende Verantwortlichkeiten zu schaffen.
4. Für viele Unternehmen ist die langfristige Tragweite des Metaverse schwer abzuschätzen. Aktuell agieren vielen

Unternehmen aus einem Hype heraus und überschätzen damit die aktuelle Bedeutung des Metaverse bzw. suchen nach raschen «Quick Wins». Dem hingegen neigen sie aber auch dazu, die langfristige Tragweite des Trends zu unterschätzen. Daher stellen die Art und Form des eigenen Engagements eine der zentralen Fragestellungen dar. Wenngleich der Aufbau eines eigenen Metaversums eher als unrealistisch zu betrachten ist, so sind Engagements auf existierenden Plattformen, wie Decentraland, bereits mit überschaubarem Ressourceneinsatz möglich. Zudem erscheint die technologische Weiterentwicklung eher eine der «kleineren Hürden» zu sein, da ähnlich wie in anderen Bereichen der digitalen Wirtschaft, steigende Rechenkapazitäten (Stichwort: «Moore's Gesetz») und Innovationen eine rasche Weiterentwicklung erwarten lassen (Elmasry et al., 2022).

Abb. 2: Herausforderungen für Marketing-Führungskräfte



Quelle: Eigene Abbildung.

5. Eine weitere Herausforderung ist im Bereich der Zahlungssysteme zu identifizieren. Auf der einen Seite existiert eine grosse Vielfalt an verschiedenen Kryptowährungen respektive Coins, welche als Zahlungsmittel bereits akzeptiert werden. Aktuell nutzen in Deutschland aber nur 10% der Bevölkerung Kryptowährungen (Bocksch, 2022). Daher sollten hier weitere Alternativen (analog zu dem Umgang mit «In-game Purchases») eingesetzt werden, damit die (vermeintlichen) Zahlungsbereitschaften auch abgeschöpft werden können.
6. Insgesamt ist die Entwicklung der Wettbewerbslandschaft in und um das Metaverse gross. Zum einen investieren einige Technologiekonzerne (darunter Meta oder aber auch Microsoft) massgebliche Milliardenbeträge. Zum anderen ist die Gaming-Industrie (bspw. Fortnite, Zepeto, The Sandbox oder Roblox), für die das Metaverse eine logische Weiterentwicklung ihrer

aktuellen Angebote darstellt, bereits relativ etabliert. Hinzukommen Start-ups, die sich mit spezifischen Lösungen im Umfeld des Metaverse positionieren. Für Marketing-Führungskräfte ist somit unklar, wer sich in Zukunft durchsetzen und wie der Wettbewerb aussehen wird. Gibt es verschiedene Spezialisierungen oder wenige komplett dominierende Unternehmen?

Es zeigt sich, dass die Mehrheit dieser Herausforderungen auf aktuelle Unsicherheiten und noch nicht geklärte Standards zurückzuführen ist. Zugleich ist aber davon auszugehen, dass durch die zunehmenden Initiativen der Unternehmen erste Antworten gefunden werden. Zudem lassen sich in einem Umfeld wie dem Metaverse Lernprozesse initiieren, die einen echten Wissensvorsprung für die Zukunft ermöglichen.

Herangehensweisen

Auf Basis aktueller Erkenntnisse und den Diskussionen mit Führungskräften lassen sich vor dem Hintergrund der Herausforderungen vier Herangehensweisen an das Metaverse bestimmen. Für jedes der Handlungsfelder lassen sich zudem bereits erste Zugänge in der Praxis finden.

Der erste Zugang bezieht sich vor allem auf einen aktiven Wissensaufbau im eigenen Unternehmen und dient der Inspiration bzw. dem Aufbau eines eigenen Metaverse-Verständnisses. Dabei sollten sich gerade Führungskräfte auf den aktuellen Plattformen selbst bewegen und die Zugänge anderer Anbieter aktiv testen. Roblox, Fortnite, The Sandbox, Decentraland, Anxie Infinity und Zepeto sind bspw. besonders bekannte Plattformen, die es lohnt, näher zu erkunden und zu verstehen: Einige Plattformen, wie Roblox, sind für ihren Gaming-Hintergrund bekannt, bereits gut besucht und liefern damit einen besonders leichten Zugang zum Metaverse. Beispielsweise hat Nike

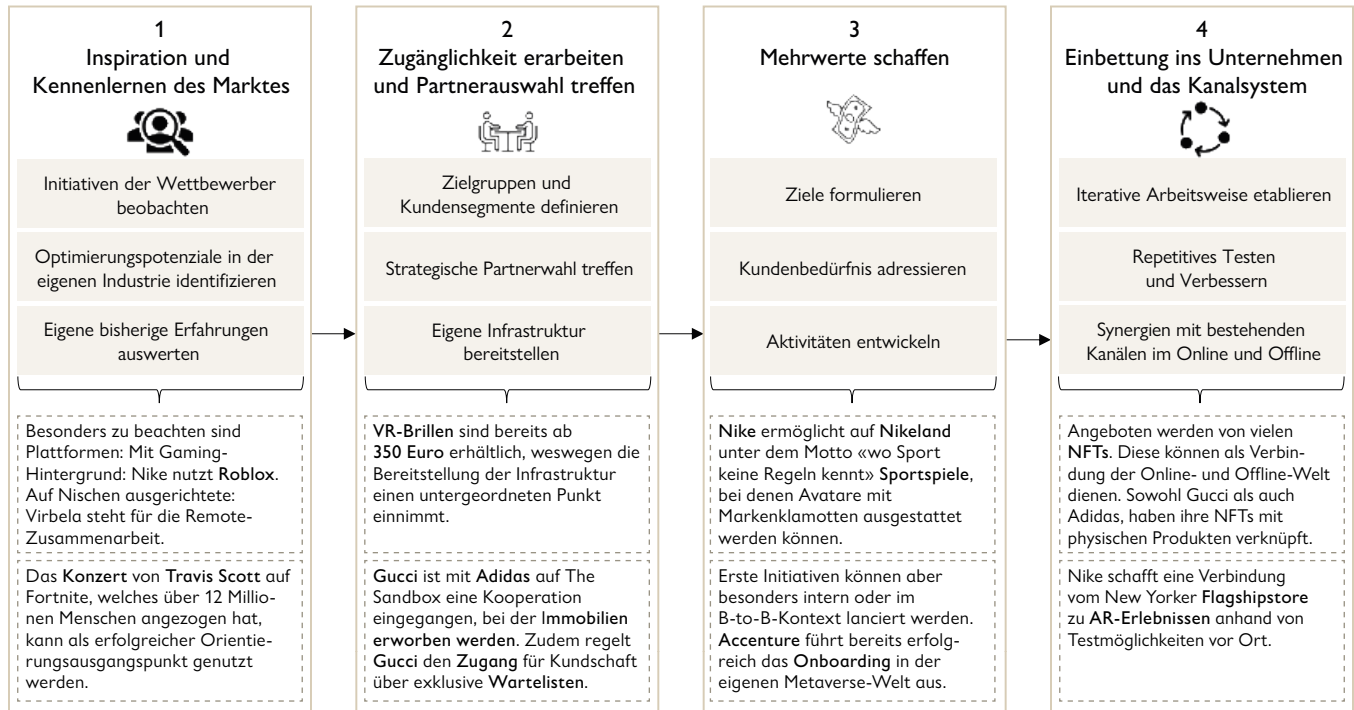
das Nikeland auf Roblox lanciert. Nike's Engagement auf Roblox ist dabei ebenso interessant, wie bspw. die Plattform Virbela, welche sich mit den Herausforderungen der Remote-Zusammenarbeit im Metaverse auseinandersetzt. Hinzu kommen Events, wie die «Fashion Week» auf Decentraland und digitale Shows, wie das Konzert von Travis Scott, auf Fortnite. Aus den Initiativen dieser relativ prominenten Player lassen sich grundsätzliche Erkenntnisse gewinnen. Wenngleich sich wenig von den Ergebnissen verallgemeinern lässt, so sollten diese ersten Projekte trotzdem fortwährend, auch in Bezug auf ihre Unzulänglichkeiten, analysiert werden. Des Weiteren bietet sich ein Austausch der Erfahrungen mit Unternehmen aus dem Ökosystem des eigenen Unternehmens an. Dabei bietet sich hier die Chance, gewisse «Second»- oder aber «Late Mover»-Vorteile zu identifizieren. Last but not least sollten *erste allfällige eigene Erfahrungen ausgewertet werden*, um die Ausrichtung des Metaverse zu verstehen. Es ist denkbar, dass noch keine ersten Schritte unternommen wurden, aber einzelne Mitarbeiterinnen und Mitarbeiter mit einer gewissen technologischen Affinität sich im privaten Umfeld bereits aktiv mit dem Metaverse beschäftigt haben.

Im zweiten Feld steht die Zugänglichkeit zum Metaverse im Mittelpunkt. Als Erstes sollten die anzusprechenden *Kundengruppen* (in ersten groben Zügen) *definiert* werden. Dann kommt vor allem der *Auswahl* sowie der *operativen Zusammenarbeit mit einzelnen Partnern* eine besondere Bedeutung zu. Dabei steht zunächst die Wahl der geeigneten Plattform im Mittelpunkt. Zudem gilt es (zwar etwas rudimentär, aber nicht zu unterschätzen), die *benötigte relevante Infrastruktur aufzubauen und bereitzustellen*. Damit ist keine vollumfängliche Einrichtung gemeint, aber es empfiehlt sich für den Anfang, zumindest als Unternehmen bereits Zugang zu VR-Brillen etc. zu schaffen, um ein besseres Gespür für das Phänomen zu bekommen. Als Beispiel kann hier Gucci angeführt werden: Das Unternehmen

Kernthesen

Es werden sich mehrere Metaverses entwickeln. Marketing-Führungskräfte sollten deshalb verstärkt ihre Fähigkeiten mittels Go-to-Market-Expertise einbringen. Die Kompatibilität der einzelnen Plattformen zueinander wird hier eine zentrale Rolle spielen. Die Modeindustrie nimmt eine führende Rolle im Metaverse ein. Deren Herangehensweisen können als Inspiration dienen, jedoch müssen Marketing-Führungskräfte trotzdem viel Eigenleistung erbringen, damit eigene Initiativen gelingen. Der Fokus liegt in Diskussionen sehr stark auf Technologien, wodurch sich Marketing-Führungskräfte durch überzeugende Herangehensweisen, die auf die Bedürfnisse der Kundschaft fokussieren, auszeichnen können.

Abb. 3: Vier Handlungsfelder als Herangehensweise an das Metaverse für Marketing-Führungskräfte



Quelle: Eigene Abbildung.

gilt als ein führender Early Adopter von Metaverse-Technologien (McDowell, 2022), da das Unternehmen früh, 2021, Initiativen lanciert hat und verschiedene Experimente bzw. Prototypen auf unterschiedlichen Plattformen (zunächst auf Roblox nun auch zunehmend auf The Sandbox) durchführt und testet. Die virtuelle Gucci-Welt bietet eine Reihe von Erlebnissen, wie bspw. Kunstausstellungen oder aber das Einkaufen von digitalen Gucci-Artikeln, mit denen Roblox-Avatare ausgestattet werden können. In der «Gucci-Town» kann seit Neustem das normalerweise physisch verfügbare Parfüm Flora in einem eigens eingerichteten Garten digital erworben werden. Guccis Ziel ist es, auf unterschiedlichste Art thematische Erlebnisse zu ermöglichen. Angepasst an die Kundenbedürfnisse, hat das Unternehmen für die Einführung von NFTs den Zugriff auf diese exklusiv

anhand einer Zulassungsliste geregelt (McDowell, 2022), wodurch das Metaverse einen besonders kundenzentrierten Ansatz ermöglicht. In Hinblick auf die Infrastruktur und das Plattform-Management kooperiert das Unternehmen mit Adidas, einem weiteren Metaverse-Anwender, wobei beide auf The Sandbox Immobilien gekauft haben und entwickeln (McDowell, 2022). Eine andere Möglichkeit, den Zugang über die Partnerwahl attraktiver zu gestalten, besteht darin, Kooperationen mit Influencern einzugehen: Der Sportartikelhersteller Nike ermöglicht bspw. Events mit Profi-Sportlerinnen und -Sportlern wie LeBron James.

Das dritte Handlungsfeld umfasst das eigentliche Engagement des Unternehmens im Metaverse. Im Mittelpunkt stehen dabei Zugänge, die Mehrwerte sowohl für die Kundinnen und Kunden

(bzw. Nutzerinnen/Nutzer) als auch für das Unternehmen durch das Metaverse generieren. Für die Kundschaft besteht hier vor allem die Möglichkeit, Menschen unterschiedlicher Orte gleichzeitig zu treffen, eine persönliche Zeitersparnis zu realisieren, die Nutzung erweiterter Angebote und das grenzenlose Erlebnis im Metaverse zu entdecken. Das Metaverse ermöglicht Interaktionsmöglichkeiten in vielfältigster Art und Weise mit der Kundschaft (Dwivedi et al., 2022). Besonders auf den Aspekt «Experience» setzen Unternehmen. Auffällig ist der bisherige Erfolg von Veranstaltungen sowie aktiven Nutzungsmöglichkeiten im Metaverse. Beispielsweise hat Nike Sportspiele entwickelt, an denen man mit seinem individuell gestalteten Avatar teilnehmen kann. Die erwerbbaeren Produkte für diese Spiele bestehen aus sowohl virtuellen als auch physischen Kleidungsstücken. Nike

adressiert dabei im Metaverse erfolgreich den Zugang der Co-Creation. Für die Schaffung von Mehrwert für das eigene Unternehmen sind neben den finanziellen Mehrwerten vor allem auch Insights bei der Datengenerierung und der Ansprache neuer Kundschaft gegeben. Weitere aktuell typische Aktivitäten im Metaverse sind vor allem Marketingkampagnen, die Mitarbeiterentwicklung und Recruitings bzw. Onboardings, Meetings/ Events bzw. Konferenzen und das Produktdesign bzw. die Nutzung von «Digital Twins» (Elmasry et al., 2022). Marketing-Führungskräften kann empfohlen werden, erste Initiativen vorerst intern oder im B-to-B-Kontext zu testen. In der Umsetzung zeigt dies bspw. Facebook, welches über die Horizon-App die Virtual-Reality-Headsets Oculus Quest 2 testet, welche für Meetings oder Konferenzen genutzt werden. Auch nutzt die Beratung Accenture zum Beispiel ihr eigens gestaltetes Metaverse erfolgreich für bspw. Onboarding-Prozesse. Während der Pandemie hat das Unternehmen 150 000 neue Teammitglieder hierüber eingearbeitet. Anstelle der Verwendung von Zoom erhielten die Mitarbeiterinnen und Mitarbeiter hierfür einen Laptop und ein XR-Headset.

Das vierte Handlungsfeld widmet sich der Fragestellung, wie das Metaverse langfristig in das Unternehmen eingebettet werden kann. Marketing-Führungskräfte sollten sich demnach mit der Einbettung in die eigenen Unternehmensaktivitäten sowie in das bestehende (Mehr-)Kanal-system für Kommunikation & Vertrieb beschäftigen. Bei Gucci wurde für diese Aktivitäten ein eigenes Team aufgesetzt (McDowell, 2022), welches sich dauerhaft mit den Aufgaben bzw. Herausforderungen des Metaverse beschäftigt und neue Anwendungen repetitiv testet. Zudem gilt es, die Verknüpfungen zwischen virtueller und realer Welt aktiv zu gestalten. Aktuell sind dabei vor allem NFTs von Bedeutung. Als ideales Bindeglied dient die Verknüpfung digitaler Assets mit realen Produkten (und umgekehrt). Als Beispiel ist hier Adidas zu nennen, deren NFTs

Handlungsempfehlungen

Marketing-Führungskräfte sollten innerhalb ihrer Unternehmen eine führende Rolle einnehmen, um Initiativen zu entwickeln, die für Metaverse-Kundschaft und das eigene Unternehmen einen Mehrwert kreieren. Es sollte ein Bewusstsein für die zentralen Eigenschaften und Herausforderungen im Umgang mit dem Metaverse unternehmensintern geschaffen werden. Die Lancierung und Herangehensweise für Initiativen im Metaverse kann entlang von vier Handlungsfeldern geschehen.

gleichzeitig neben dem Zugang zu den virtuellen Produkten einen exklusiven Zugang zu den physischen Leistungen der Marke gewähren. Auch Nike nutzt seine Metaverse-Präsenz auf Roblox, um diese mit der physischen Welt zu verbinden, respektive letztere zu erweitern. Im «House of Innovation», dem New Yorker Flagshipstore des Konzerns, gibt es Augmented-Reality-Erlebnisse, die ebenfalls Verbindungen zwischen beiden Welten schaffen (Hennig-Thurau & Ognibeni, 2022).

Fazit

Die aktuellen Diskussionen zeigen, dass das Metaverse an Bedeutung gewinnt. Trotzdem ist der Begriff noch unklar und viele Marketing-Führungskräfte sind mit dem Metaverse noch wenig vertraut. Die sechs erarbeiteten Herausforderungen verdeutlichen besonders noch bestehende Unsicherheiten, während die aufgezeigten Handlungsfelder als konkretes Vorgehen genutzt werden können, um sich an das Metaverse heranzutasten. ■



Weitere Ergänzungen zum Artikel finden Sie unter: unisg.link/MRSG-Schoegel-et-al

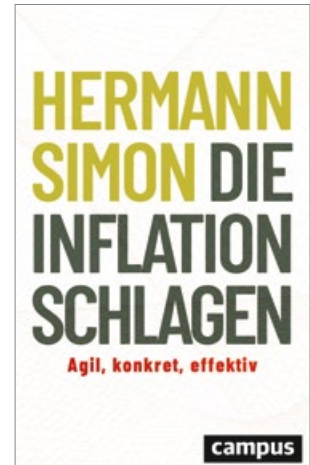
Literatur

- Agustin, F. (2021, 21. November). Here's what 14 top executives are saying about the "metaverse." Insider. <https://www.businessinsider.com/tech-execs-said-about-the-metaverse-earnings-calls-2021-11?r=US&IR=T>
- Baron, C. (2022). Faszination Metaverse: Wie META, Microsoft & Co. das Internet neu erfinden – und welche Potenziale sich daraus ergeben. Media for Excellent.
- Bocksch, R. (2022, 3. Februar). So verbreitet ist sind Kryptowährungen. Statista. <https://de.statista.com/infografik/22561/anteil-der-krypto-nutzer-in-ausgewaehlten-laendern/>
- Dwivedi, Y. K., Hughes, L., Baabdullah, A. M., Ribeiro-Navarrete, S., Giannakis, M., Al-Debei, M. M., Dennehy, D., Metri, B., Buhalis, D. & Cheung, C. M. K. (2022). Metaverse beyond the hype: Multidisciplinary perspectives on emerging challenges, opportunities, and agenda for research, practice and policy. *International Journal of Information Management*, 66, 102542.
- Elmasry, T., Khan, H., Yee, L., Hazan, E., Kelly, G., Zimmel, R. & Srivastava, S. (2022). Value creation in the Metaverse. McKinsey & Company. <https://www.mckinsey.com/-/media/mckinsey/business-functions/marketing-and-sales/our-insights/value-creation-in-the-metaverse/Value-creation-in-the-metaverse.pdf>
- Hennig-Thurau, T. & Ognibeni, B. (2022, 28. Juni). Was das Metaverse Unternehmen bringen kann. *Harvard Business Manager*. <https://www.manager-magazin.de/harvard/strategie/metaverse-analyse-welche-chancen-bieten-die-virtuellen-3d-welten-unternehmen-a-4452f042-52e6-488f-9ba4-7e4bf4781998>
- Hollensen, S., Kotler, P. & Opresnik, M. O. (2022). Metaverse – the new marketing universe. *Journal of Business Strategy*.
- Kovacova, M., Machova, V. & Bennett, D. (2022). Immersive extended reality technologies, data visualization tools, and customer behavior analytics in the Metaverse commerce. *Journal of Self-Governance & Management Economics*, 10(2), 7–21. <https://doi.org/10.22381/jsme1020221>
- Lee, L.-H., Braud, T., Zhou, P., Wang, L., Xu, D., Lin, Z., Kumar, A., Bermejo, C. & Hui, P. (2021). All one needs to know about metaverse: A complete survey on technological singularity, virtual ecosystem, and research agenda. *ArXiv Preprint ArXiv:2110.05352*.
- McDowell, M. (2022, 9. März). Gucci goes deeper into the metaverse for next NFT project. *Vogue Business*. <https://www.voguebusiness.com/technology/gucci-goes-deeper-into-the-metaverse-for-next-nft-project>
- Park, S.-M. & Kim, Y.-G. (2022). A metaverse: Taxonomy, components, applications, and open challenges. *IEEE Access*, 10, 4209–4251. <https://doi.org/10.1109/access.2021.3140175>
- Schögel, M., Grellmann, L. & Herhausen, D. (2022). Szenarien für das Metaverse [Unpublished manuscript]. Institut für Marketing und Customer Insight, Universität St. Gallen.
- Tranfield, D., Denyer, D. & Smart, P. (2003). Towards a methodology for developing evidence-informed management knowledge by means of systematic review. *British Journal of Management*, 14(3), 207–222.
- Universität der Bundeswehr München. (2022, 18. Juli). Studie: Deutsche Unternehmen unterschätzen Metaverse. *Marketing Börse*. <https://www.marketing-boerse.de/news/details/2229-studie-deutsche-unternehmen-unterschaetzen-metaverse/186513>

Buchrezension

Abstract

- Die Inflation hat seit dem letzten Jahr stark angezogen und die höchsten Raten seit den Siebzigerjahren erreicht. Nicht zuletzt aufgrund der aufgeblähten Geldmenge ist mit einem längeren Anhalten der Inflation zu rechnen.
- Betriebswirtschaftlich sind keine Durchschnittswerte relevant, sondern es ist je nach Branche, Situation und Produkt sowie je nach Kundenreaktion differenziert vorzugehen. Kundinnen und Kunden werden preissensibler – aber es kann auch sein, dass bei sehr hoher Inflation das Kundenreferenzpreissystem gestört wird und der Preis dadurch an Relevanz verliert.
- Inflation auf der Beschaffungsseite treibt kurzfristig die proportionalen Kosten stärker als die fixen Kosten, wodurch die Break-Even-Menge überproportional ansteigt.
- In der Inflation muss es darum gehen, den realen Gewinn zu verteidigen. Es drohen Geldillusion und steuerpflichtige Scheingewinne aufgrund von Abschreibungen, die auf (zu niedrigen) historischen Kosten beruhen.
- Kostensenkungen werden nur rund 20% des inflationsbedingten Kostenanstiegs abfangen.
- Eine Überwälzung der Kosten an die Kundschaft in voller Höhe ist meist nicht optimal – es empfiehlt sich eine Aufteilung der Mehrkosten.
- Durch eine Erhöhung des Kundennutzens kann es gelingen, den Widerstand gegen Preiserhöhungen abzumildern – beispielsweise mittels Innovationen, Zusatzservices und erweiterten Garantien. Dabei sollten jedoch Zeit- und Kostenbedarf berücksichtigt werden.
- Preisdifferenzierung ist besonders wichtig, weil die Inflation die Zahlungsbereitschaften verschiedener Kundengruppen unterschiedlich trifft. Preisdurchsetzung bei hochmargigen Kunden gelingt meist besser.
- Innovative Preisstrategien wie beispielsweise erfolgsabhängige Preise, Bundling, Unbundling und Pay-per-use sind zu prüfen.
- Bei Inflation sollten Preis- und Vertriebsmanagement stärker zentral geführt und hierarchisch aufgewertet werden. Cash-Management und eine Verkürzung von Zahlungszielen werden wichtiger.



Hermann Simon
Die Inflation schlagen

Agil, konkret, effektiv
Campus Verlag, 1. Auflage (Juli 2022)
deutsch, 208 Seiten,
Hardcover gebunden
CHF 45,90 / EUR 30,00
ISBN 9783593516738

Nutzen für die Praxis

Die Inflation trifft heute zumeist auf Führungskräfte, die keine eigene Erfahrung mit Inflation haben. Da der Preis der grösste Gewinntreiber ist, ist das Buch allen Markt- und Finanzverantwortlichen dringend zur Lektüre empfohlen. Es erscheint zum richtigen Zeitpunkt.

Prof. Dr. Sven Reinecke

Kernthesen

- 1 Um gewinnschädigende Verzögerungen zu vermeiden, muss das Management für eine Erhöhung der Agilität und für richtiges Timing sorgen. Ziel ist es, mit Preisanpassungen «vor die Kostenwelle zu kommen».
- 2 Bei Inflation sind häufig mehrere kleine Preiserhöhungen vorteilhafter als eine einmalige grosse Preiserhöhung.
- 3 Die Beteiligung des CEO am Pricing trägt signifikant zur Stärkung der Pricing-Power bei. Gewinntransparenz ist erforderlich, die Finanzen sind zu priorisieren und Kosten zu senken.

Literatur zum Thema: Open Innovation & Crowdsourcing

Bücher

- Chesbrough, H. W. (2003).**
Open innovation: The new imperative for creating and profiting from technology. Harvard Business Press.
- Gassmann, O. (2010).**
Crowdsourcing – Innovationsmanagement mit Schwarmintelligenz. Hanser.

Artikel

- A. & Tucci, C. L. (2012).**
Crowdsourcing as a solution to distant search. *Academy of Management Review*, 37(3), 355–375.
- Aggarwal, V., Hwang, E. H. & Tan, Y. (2020).**
Learning to be creative: A mutually exciting spatio-temporal point process model for idea generation in open innovation. <http://dx.doi.org/10.2139/ssrn.3375528>
- Bayus, B. L. (2013).**
Crowdsourcing new product ideas over time: An analysis of the Dell IdeaStorm community. *Management Science*, 59(1), 226–244.
- Beretta, M. (2019).**
Idea selection in web-enabled ideation systems. *Journal of Product Innovation Management*, 36(1), 5–23.
- Blohm, I., Riedl, C., Füller, J. & Leimeister, J. M. (2016).**
Rate or trade? Identifying winning ideas in open idea sourcing. *Information Systems Research*, 27(1), 27–48.
- Blohm, I., Riedl, C., Leimeister, J. M. & Krcmar, H. (2011).**
Idea evaluation mechanisms for collective intelligence in open innovation communities: Do traders outperform raters? *Proceedings of 32nd International Conference on Information Systems*.
- Chan, K. W., Li, S. Y. & Zhu, J. J. (2018).**
Good to be novel? Understanding how idea feasibility affects idea adoption decision making in crowdsourcing. *Journal of Interactive Marketing*, 43, 52–68.
- Chesbrough, H. (2003).**
The logic of open innovation: Managing intellectual property. *California Management Review*, 45(3), 33–58.
- di Gangi, P. M., Wasko, M. M. & Hooker, R. E. (2010).**
Getting customers' ideas to work for you: Learning from Dell how to succeed with online user innovation communities. *MIS Quarterly Executive*, 9(4), 213–228.
- Hofstetter, R., Dahl, D. W., Aryobsei, S. & Herrmann, A. (2020).**
Constraining ideas: How seeing ideas of others harms creativity in open innovation. *Journal of Marketing Research*, 58(1), 95–114.
- Hofstetter, R., Suleiman, A. & Herrmann, A. (2017).**
Rethinking crowdsourcing. *Harvard business review: HBR*, (November–December), 19–22.
- Huang, Y., Singh, P. V. & Srinivasan, K. (2014).**
Crowdsourcing new product ideas under consumer learning. *Management Science*, 60(9), 2138–2159.
- Kosonen, M., Gan, C., Vanhala, M. & Blomqvist, K. (2014).**
User motivation and knowledge sharing in idea crowdsourcing. *International Journal of Innovation Management*, 18(5). <http://dx.doi.org/10.1142/S1363919614500315>
- Luo, L. & Toubia, O. (2015).**
Improving online idea generation platforms and customizing the task structure on the basis of consumers' domain-specific knowledge. *Journal of Marketing*, 79(5), 100–114.
- Moreau, C. P. & Dahl, D. W. (2005).**
Designing the solution: The impact of constraints on consumers' creativity. *Journal of Consumer Research*, 32(1), 13–22.
- Piezunka, H. & Dahlander, L. (2015).**
Distant search, narrow attention: How crowding alters organizations' filtering of suggestions in crowdsourcing. *Academy of Management Journal*, 58(3), 856–880.
- Piezunka, H. & Dahlander, L. (2019).**
Idea rejected, tie formed: Organizations' feedback on crowdsourced ideas. *Academy of Management Journal*, 62(2), 503–530.
- Poetz, M. K. & Schreier, M. (2012).**
The value of crowdsourcing: Can users really compete with professionals in generating new product ideas? *Journal of Product Innovation Management*, 29(2), 245–256.
- Schemmann, B., Herrmann, A. M., Chappin, M. M. H. & Heimeriks, G. J. (2016).**
Crowdsourcing ideas: Involving ordinary users in the ideation phase of new product development. *Research Policy*, 45(6), 1145–1154.
- Terwiesch, C. & Xu, Y. (2008).**
Innovation contests, open innovation, and multiagent problem solving. *Management Science*, 54(9), 1529–1543.
- Toubia, O. & Florès, L. (2007).**
Adaptive idea screening using consumers. *Marketing Science*, 26(3), 342–360.
- Wei, Y. M., Hong, J. & Tellis, G. J. (in press).**
EXPRESS: Machine Learning for creativity: Using similarity networks to design better crowdfunding projects. *Journal of Marketing*. <https://doi.org/10.1177/00222429211005481>

Zusammengestellt von
Felix Schakols und Lucas Nann

Thema der nächsten Ausgabe: Assessing Marketing Performance

Marketingführungskräfte sehen sich vermehrt einer Nachweispflicht des Wertbeitrags des Marketings für den Unternehmenserfolg ausgesetzt. Die Marketingdisziplin ist aufgefordert, geeignete Instrumente des Marketing-Controllings zur Erfassung von Effizienz und Effektivität von Marketingmaßnahmen zu entwickeln. Mithilfe von Marketing Performance Management und -Assessment soll es gelingen, Marketing zunehmend als wertstiftende Funktion in Unternehmen zu positionieren. Nach wie vor bestehen jedoch grosse Umsetzungs Herausforderungen in der Unternehmenspraxis. Vor diesem Hintergrund werden Beiträge gesucht, die sich mit der Definition und Auswahl von Marketingführungsgrößen, der Entwicklung und An-

wendung von Marketing-Controllinginstrumenten, dem Wirkungsnachweis des Marketings auf den Unternehmenserfolg oder der datengesteuerten Marketingführung im Allgemeinen beschäftigen. Ausgewählte, aber keinesfalls abschliessende Themen sind dabei:

- Nachweis des Marketing-Wertbeitrags für den Unternehmenserfolg
- Return on Marketing
- Datengestütztes Marketingmanagement
- Marketing Performance Measurement
- Marketing Metrics & Data Analytics
- Entwicklung und Anwendung von strategischen und operativen Marketing-Controllinginstrumenten

Impressum

Marketing Review St. Gallen

Thesis Verlag
Universität St. Gallen
Institut für Marketing
und Customer Insight
Dufourstrasse 40a
CH-9000 St. Gallen

Redaktionsleitung

Universität St. Gallen
Susanna Renner, M.Sc.
Telefon: +41 (0) 71 224 28 40
susannaelisa.renner@unisg.ch

Redaktion & Satz

Communication
Network Media
Ridlerstrasse 35a
D-80339 München
Telefon: +49 (0) 89 72 95 99-15
Deivis Aronaitis,
Alexandra Budik

Schlussredaktion

Wolfgang Mettmann (deutsch)
Renate Schilling (englisch)

Layout & Produktion

deivis aronaitis design | dad |
Leonrodstrasse 68
D-80636 München
Telefon: +49 (0) 89 120 278 10
Telefax: +49 (0) 89 120 228 14
grafik@da-design.lt

Titelbild

© iStockphoto / Menno van Dijk

Anzeigenleitung

Susanna Renner, M.Sc.
Telefon: +41 (0) 71 224 28 40
susannaelisa.renner@unisg.ch

Insights

Die Inhalte unter dieser Rubrik sind aus der Marketingpraxis gesponserte Beiträge.

Leserservice

Magdalena Britt
Telefon: +41 (0) 71 224 71 52
magdalena.britt@unisg.ch

Druck & Verarbeitung

Aumüller Druck
GmbH & Co. KG
Kennwort:
Marketing Review St. Gallen
Weidener Strasse 2
D-93057 Regensburg

Herausgeber

Prof. Dr. Sven Reinecke (schriftführend)
Prof. Dr. Thomas Bieger
Prof. Dr. Johanna Gollnhofer
Prof. Dr. Dennis Herhausen
Prof. Dr. Andreas Herrmann
Prof. Dr. Christian Hildebrand
Prof. Dr. Thomas Rudolph
Prof. Dr. Christian Schmitz
Prof. Dr. Marcus Schögel
Prof. Dr. Dr. h.c. Torsten Tomczak
Prof. Dr. Dirk Zupancic
Mitbegründer Prof. Dr. Christian Belz
Prof. Dr. Heinz Weinhold-Stünzi †

Beirat

Prof. Dr. Dr. h.c. Klaus Backhaus, Berlin
Andreas Balazs
Prof. Dr. Hans H. Bauer, Mannheim
Dr. Hans-Jürg Bernet
Prof. Dr. Dr. h.c. Dr. h.c.
Manfred Bruhn, Basel
Prof. Dr. Christoph Burmann, Bremen
Prof. Dr. Dr. h.c. Hermann Diller, Nürnberg
Prof. Dr. Franz-Rudolf Esch,
Oestrich-Winkel
Prof. Dr. Jürgen Häusler
Prof. Dr. Manfred Krafft, Münster
Dr. Michael Löffler
Prof. Dr. Dr. h.c. mult. Heribert Meffert,
Münster
Prof. Dr. Anton Meyer, München
Prof. Dr. Dominique von Matt
Dr. Michael Reinhold
Felix Richterich
Urs Riedener
Prof. Dr. Bernhard Swoboda, Trier
Prof. Dr. Bodo B. Schlegelmilch, Wien
Prof. Dr. Hans-Willi Schroiff, Aachen
Prof. Dr. Dr. h.c. mult. Hermann Simon
Alexander Stanke

Bezugsmöglichkeit und Erscheinungsweise

Das Heft erscheint sechs Mal jährlich, Auflage: 3600 Exemplare. Bestellmöglichkeiten und Details zu den Abonnementbedingungen sowie AGB finden Sie unter www.marketing-review.ch

Alle Rechte vorbehalten.

Nachdruck

Die Zeitschrift sowie alle in ihr enthaltenen einzelnen Beiträge einschliesslich sämtlicher Abbildungen, Grafiken, Fotos sind urheberrechtlich geschützt. Sofern eine Verwertung nicht ausnahmsweise ausdrücklich vom Urheberrechtsgesetz zugelassen ist, bedarf jedwede Verwertung eines Teils dieser Zeitschrift der vorherigen schriftlichen Zustimmung des Verlages. Dies gilt insbesondere für Vervielfältigungen, Nachdrucke, Bearbeitungen, Übersetzungen, Mikroverfilmungen, öffentliche Zugänglichmachung sowie die Einspeicherung und Verarbeitung von Teilen dieser Zeitschrift in Datenbanken und die Verarbeitung oder Verwertung über elektronische Systeme.

Die Artikel von Marketing Review St. Gallen sind mit grösstmöglicher Sorgfalt erstellt. Die Redaktion übernimmt jedoch keine Gewähr für die Richtigkeit, Vollständigkeit und Aktualität der abgedruckten Inhalte. Für den Inhalt der Werbeanzeigen ist das jeweilige Unternehmen bzw. die jeweilige Gesellschaft verantwortlich.

Für unverlangt eingesandte Manuskripte, Fotos und Illustrationen wird keine Gewähr übernommen.

Marketing Review St. Gallen
erscheint im 39. Jahrgang

ZKZ 70610

ISSN 1865-6544

**B. BRAUN•DRÄGER
TELEKOM•TKE
PEEK & CLOPPENBURG
WWF•PORSCHÉ
MEDIAMARKT
HEIDELBERG MATERIALS
LIEBHERR•AOK
HENKEL•KÖRBER
VOLKSWAGEN
UNIVERSITY OF ST.GALLEN**

BRAND

**STARTS WITH M
METADESIGN.COM**



reddot award 2022
agency of the year