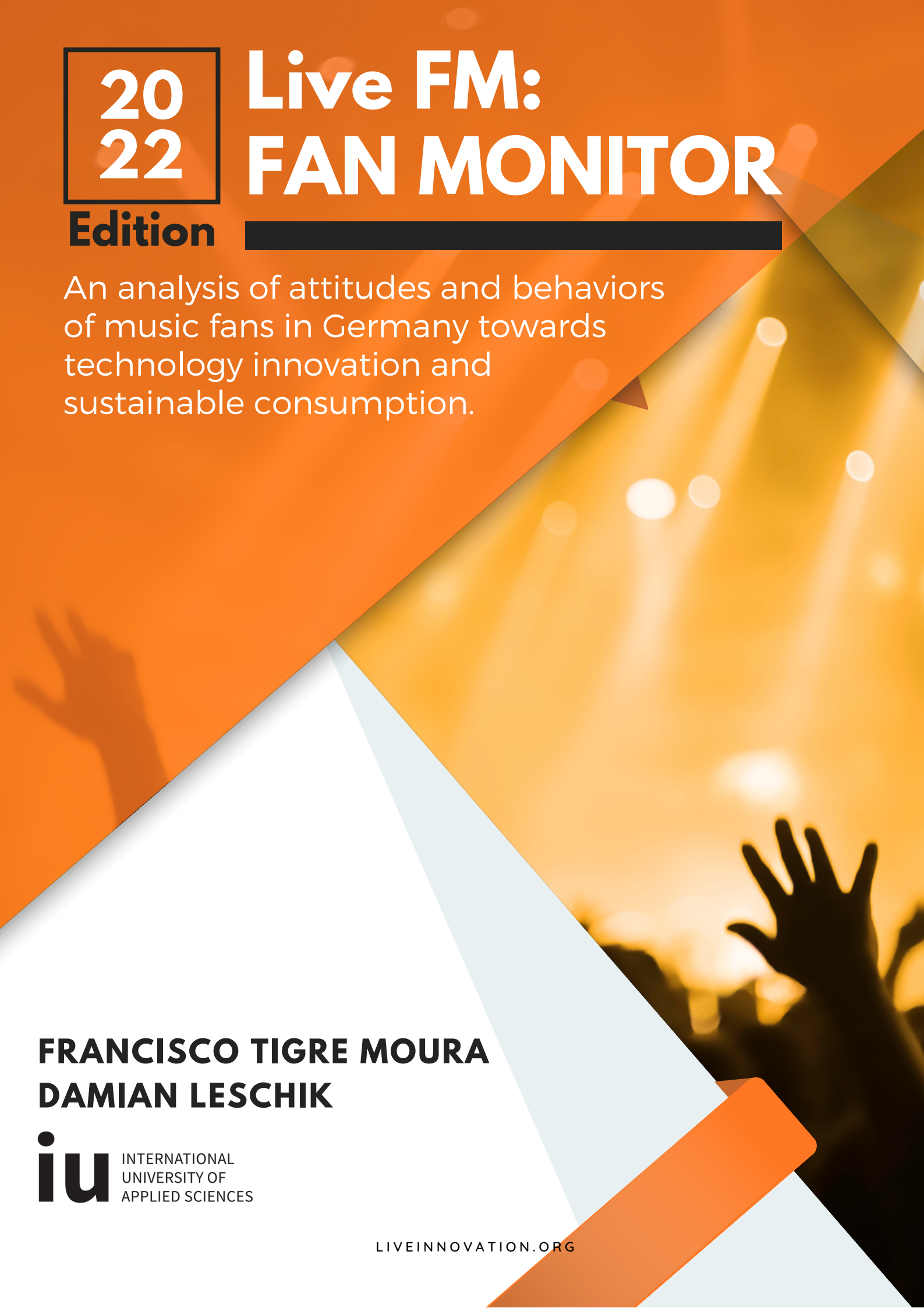
2022 Edition

Live FM: FAN MONITOR

An analysis of attitudes and behaviors of music fans in Germany towards technology innovation and sustainable consumption.



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LIVEINNOVATION.ORG

Live FM: Fan Monitor is an applied research project initiated in 2020, funded by IU University of Applied Sciences through the "IU Kompass". Its mission is to develop and share research findings in an accessible format, and contribute to discussions on timely issues in the entertainment sector.

LIVEINNOVATION.ORG is an independent academic initiative founded by Francisco Tigre moura in 2017. It is a platform to support and inspire students through educational content. It is also a way to connect with scholars and industry stakeholders. The main areas of interest involve marketing, consumer behaviour and sustainable consumption; artificial creativity; and technology experiences. All mainly applied to contexts of live hedonic experiences.

TABLE OF CONTENTS

01

WELCOME

02

EXECUTIVE SUMMARY

03

METHODOLOGY

03

SAMPLE PROFILE

06

TECHNOLOGY INNOVATION

08

ARTIFICIAL INTELLIGENCE AND CREATIVITY

11

VIRTUAL REALITY EXPERIENCES

14

FACIAL RECOGNITION TECHNOLOGIES

17

SUSTAINABLE CONSUMTPION

18

INTEREST IN SUSTAINBILITY AND CLIMATE CHANGE

20

SUSTAINABLE CONSUMPTION DURING CONCERTS

23

COMMUNICATING SUSTAINABILITY

26

POLICY RECOMMENDATION FOR POLICY MAKERS

28

CONTACT, REFERENCE AND FUNDING

30

OTHER PUBLICATIONS AT LIVEINNOVATION.ORG

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PREVIOUS EDITIONS

2022 Edition — Live FM: FAN MONITOR

N= 1,290 

Technology innovation
- Facial recognition technologies
- Artificial intelligence
- Virtual reality

Sustainable consumption
- Own behavior and attitudes
- Communication
- Perception of events

2021 Edition — Live FM: FAN MONITOR

N= 1,173 

N= 400 

Technology innovation
- Facial recognition technologies
- Artificial intelligence
- Virtual reality

Environment and society
- Sustainability
- Climate change
- Politics

Attendance and tickets
- Concert attendance
- Ticket purchase
- Risk perception

Marketing and consumption
- Streaming
- Vinyl products

2020 Edition — Live FM: FAN MONITOR

N= 454 

N= 111 

Covid 19 and attendance
- Risk perception
- Experience expectations

Purchase behaviour
- Ticket purchase
- Ticket cancellation
- Branding

Technology innovation
- Virtual reality
- Artificial intelligence
- Instagram lives
- Future innovations

2022 Edition

Live FM: FAN MONITOR

WELCOME!

2022 was a year of renewed energy for the live entertainment sector, fascinating opportunities, and unexpected challenges.

This year saw incredible advances in general automation and artificial creativity for the music industry. Innovation is accelerating at incredible speed, and its progress often crossed barriers of consumer privacy. If for one side human creativity has been strongly augmented, advances and application of facial recognition for live events triggered relevant discussions. In this year's report we hope to have addressed many of them.

2022 also witnessed a series of new start-ups with sustainable solutions for the experience economy. Consumer demand for such innovations has never been higher. In this context, we aimed to address timely questions, bringing light to attitudes and behaviors of consumers.

Due to operational challenges, unlike previous editions, this year's monitor did not research fans in Scotland. For 2023 we hope to continue the collaboration with scholars abroad and expand the project.

I hope you find the report easy to follow, insightful and relevant. See you next year, in the 2023 edition of the Live FM: Fan Monitor.

Have a beautiful day,

Francisco Tigre Moura

EXECUTIVE SUMMARY

The 2022 edition of the Live FM: Fan Monitor revealed important findings regarding the perceptions of music fans in Germany.

Technology & innovation.
Regarding artificial intelligence (AI), respondents are somewhat positive towards its implementation in music. However, educational level, and especially interest in technology innovation, are strong predictors of the acceptance

Virtual reality (VR) is perceived as a cutting-edge technology, but ownership and purchase intentions remain low. The interest in consuming music related content in VR also remains low. Virtual experiences are also perceived as not being as enjoyable as real-life ones.

Facial recognition technologies (FRT) and personal privacy remains a very important issue. Acceptance of its use during hedonic events remains very negative. Overall, fans demand venues to inform if it is being used.

Sustainable consumption.
Attitude towards sustainability and climate change remains very positive. However, it is not clearly reflected in actual sustainable consumption behavior during concerts. In general, respondents reported having made only minor changes to their consumption behaviors, with greater adoption from female and highly educated respondents.

Sustainable consumption behaviours were mostly seen in practices such as mobility, litter disposal, electronic tickets and plastic reduction. More advanced practices, such as carbon offsetting for flights or purchase of circular merchandise, were considerably less common.

Finally, respondents believe artists can influence fans to behave sustainably and believe it is their role to do so. Once again, educational level was an important factor to predict the acceptance of musicians in raising awareness to sustainability related issues.

METHODOLOGY

The data here presented was collected online and offline in Germany during the months of August and November 2022. The measurements were defined through discussions with scholars and industry stakeholders. The population of the study was defined as active music concert goers, based on their frequency of attendance in 2021.

For the data collection, non-probability sampling techniques were applied. In specific, convenience, snowball and voluntary response sampling methods. The survey was distributed directly and indirectly on university mailing-lists, shared on social media platforms of the institutions and of the researchers, to industry stakeholders and on LiveInnovation.org. Moreover, data was also gathered through Talk Online Panel, for voluntary response sampling.

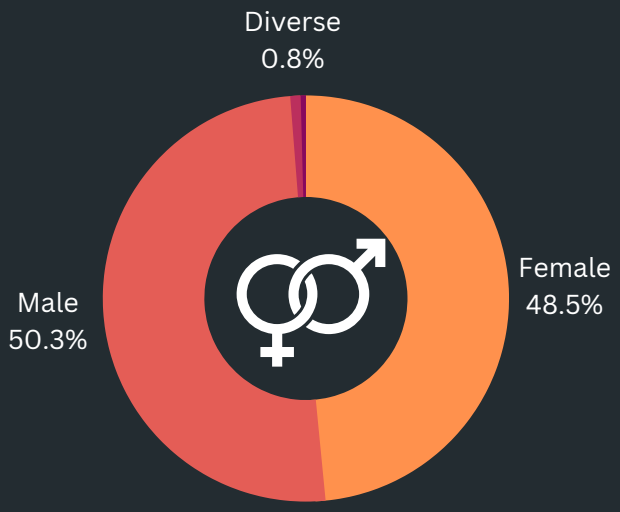
The project is funded by IU University of Applied Sciences, through the "IU Kompass". Gift vouchers were raffled to motivate participation. A total of 1,581 respondents answered the survey. After data screening, a final valid sample of 1,290 respondents over 18 years old was used for the analysis. All analysis were conducted on SPSS V25 and tests included descriptive statistics, cross-tabulation, Chi-Square, One-way ANOVA, correlation and independent Samples t-Test.

LIMITATIONS & NOTES FOR INTERPRETATION

First, attitude and intentions represent only an indication of future behavior. Often, such indications are not reflected in actal behavior. Also, the application of non-probability sampling techniques and the recruitment of participants through online panels may also represent a limitations of the study. Finally, findings are not representative of the German population, and thus, results cannot be generalized.

SAMPLE

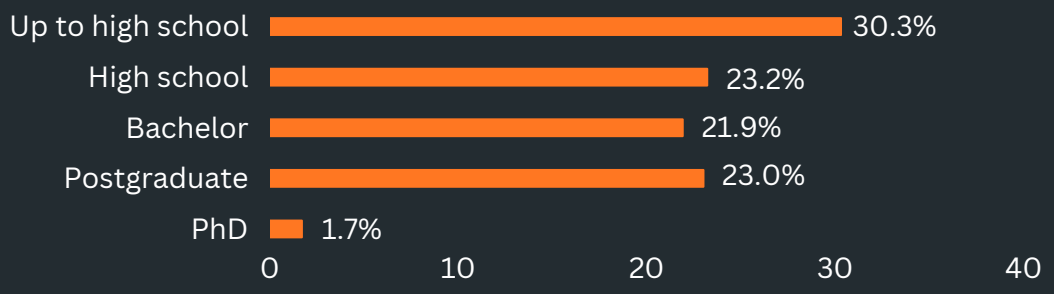
1,290
Valid respondents residing in Germany



AGE

40.1%
respondents ranged between 18 and 34 years of age

33.2%
respondents ranged between 35 and 52 years of age



TICKET

79.1%
of respondents attended **1-3** concerts in the last 12 months

7.1%
of respondents attended **7 or more** concerts in the last 12 months

SAMPLE

Most Preferred Music Genres

Respondents could choose up to 3 music genres

54.2% Pop / Dance

49.4% | 49.8%

Diverse < 1%

42.0% Rock / Hard rock

52.9% | 46.6%

Diverse < 1%

30.4% Rap/ Hip-Hop

50.7% | 47.9%

Diverse < 1%

24.9% Electronic / Techno

56.2% | 43.8%

Diverse < 1%

24.9% Classic / Instrumental

46.7% | 53.3%

Diverse < 1%

18.7% Blues / Jazz

60.4% | 39.6%

Diverse < 1%

15.4% Country / Folk

59.7% | 40.3%

Diverse < 1%

AGE

Further analysis revealed significant statistical associations between **age** and the following genres:

- Classical / instrumental (p=.001)
- Country / folk (p=.004)
- Electronic / techno (p=.000)
- Pop / dance (p=.001)
- Rap / Hip-hop (p=.000)
- Rock / Hard rock (p=.014)

Further analysis revealed significant statistical associations between **educational level** and the following genres:

- Classical / instrumental (p=.000)
- Electronic / techno (p=.002)

TECHNOLOGY & INNOVATION

01 RATIONALE OF QUESTIONS

In the 2022 edition, we focused on the following three topics related to technology and innovation:

- Artificial intelligence (AI). One of the many applications of AI in music is for the composition process of songs. Algorithms can identify patterns withing musical structures, and thus, create autonomously or in collaboration with humans, completely new songs. But does the use of AI make artists more creative? How familiar are fans with AI? Would it disappoint them to know their favourite artists is using AI to compose songs?

- Virtual reality (VR). Virtual reality has long enabled humans to experience fully immersive virtual experiences. In the case of the music industry, it could potentially represent an extraordinary new revenue stream. But how many people even have VR glasses? Do fans even consider VR a cutting-edge technology? Would they be interested in consuming music related products in VR?

- Facial Recognition Technologies (FRT). Facial recognition technologies have enabled not only the identification of humans based on facial traits, but also the understanding of emotions and even personality traits. In the context of live entertainment, it is often communicated as an important tool to enhance safety. But would fans enjoy the experience knowing that they can be easily identified? How much does their personal privacy matter to them? And would they feel safer?

SAMPLE

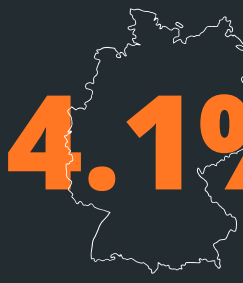
1,290
Valid respondents residing in Germany

INTEREST IN TECHNOLOGY INNOVATION

Overall interest in technology and innovation.
Items measured in a 1 (Not at all interested) - 5 (Very high) Likert type scale.

54.3%

of respondents are **very** and **extremely** interested in technology and innovation.



4.1%

of respondents in are **not at all interested** in technology and the latest innovations.

No significant statistical differences were found when comparing the perceptions of respondents with different educational levels.

Male respondents (mean: 3.61) were significantly more interested than **female** respondents (mean: 3.34) in technology and innovation.

01 TECHNOLOGY & INNOVATION

ARTIFICIAL INTELLIGENCE & CREATIVITY

RESULTS TECHNOLOGY & INNOVATION

01 ARTIFICIAL INTELLIGENCE & CREATIVITY

To which extent to you agree with the following statements?

Items measured in a 1 (Fully disagree) - 5 (Fully agree) Likert type scale.

Further analysis revealed a **moderate positive correlation** between "interest in technology and innovation" and:

- Familiarty with AI (r=.375, p<.000)
- Artists using AI being creative (r=.261, p<.000)
- Music composed with AI is as meaningful as composed by humans (r=.269, p<.000)
- I feel positive about the use of AI in the music industry (r=.237, p<.000)

Male respondents (mean: 3.53) rated significantly higher in **familiarity with AI** than female respondents (mean: 3.33).

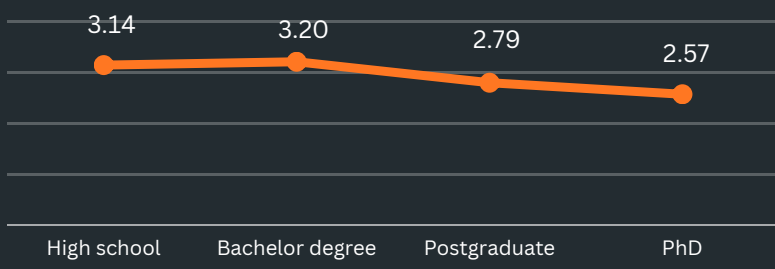
Further analysis revealed important significant differences between individuals with different educational backgorunds and how they felt towards the use of AI in music.

In short:

- **Level of education was positively related to the familiarity towards AI** (the higher the educational level, the higher the familiarity).
- **Level of education was negatively related to feeling positive about the use of AI in the music industry** (the higher the educational level, the more negative was the feeling).

I feel positive about the use of AI in the music industry

Items measured in a 1 (Fully disagree) - 5 (Fully agree) Likert type scale.

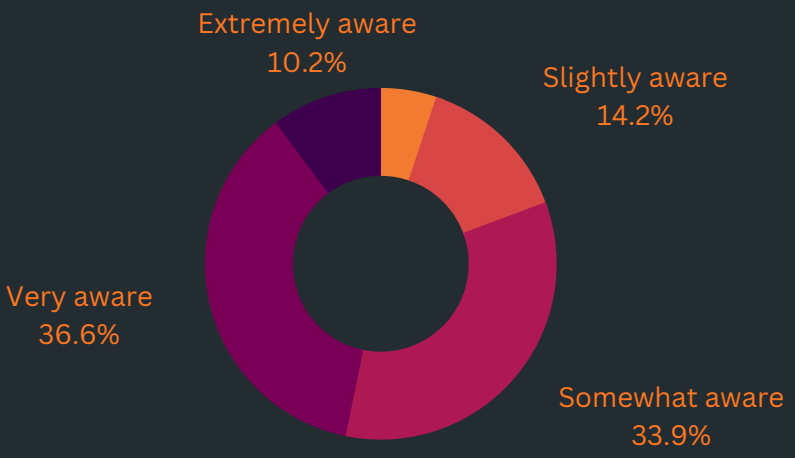


RESULTS

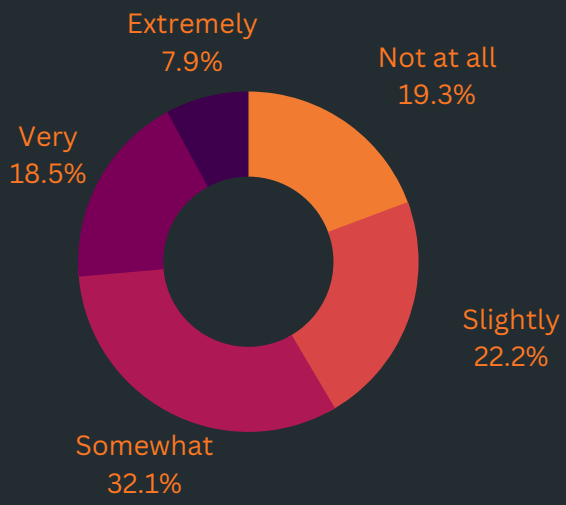
TECHNOLOGY & INNOVATION

01 ARTIFICIAL INTELLIGENCE & CREATIVITY

How aware are you that AI can compose original music without human input?



How dissapointed would you feel if your favorite artist(s) used AI to compose original music?



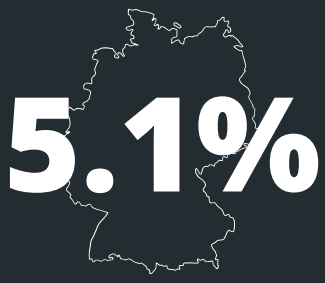
Further analysis revealed a **moderate positive correlation** between "interest in technology and innovation" and:

- Being aware that AI can compose original music (r=.310, p<.000)

Further analysis revealed a **small negative correlation** between "interest in technology and innovation" and:

- Being aware that AI can compose original music (r= -.088, p<.052)

No significant statistical differences were found when comparing perceptions of respondents of different genders towards awareness of AI in music and dissapointment for using it.



5.1%

of respondents in Germany are **not at all aware** that AI can compose original music without human input.

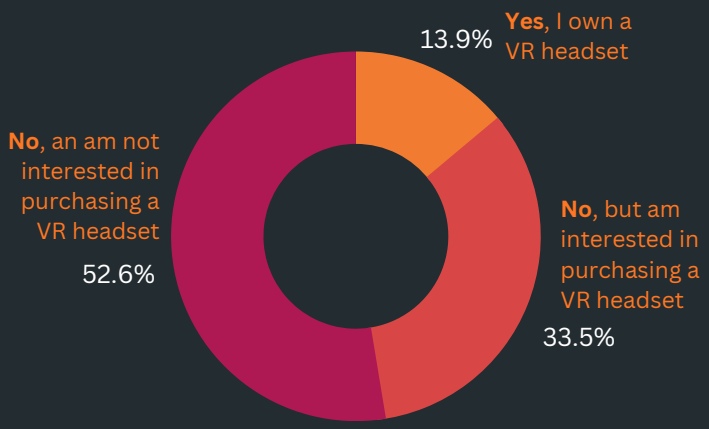
01 TECHNOLOGY & INNOVATION

VIRTUAL REALITY EXPERIENCES

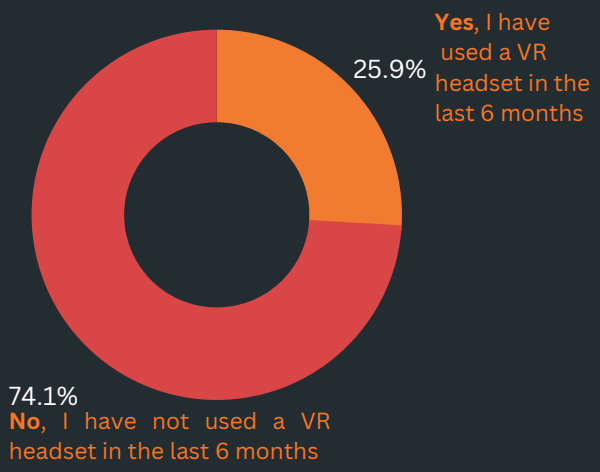
RESULTS TECHNOLOGY & INNOVATION

01 VIRTUAL REALITY EXPERIENCES

Do you currently own VR googles?



Have you used a VR headset in the last 6 months?



Who currently owns a VR headset?

58.5% Males, 38.5% Females and 3.5% Diverse

51.6%
are respondents ranged between 26 and 43 years of age

61.5%
are respondents hold a Bachelor or Postgraduate degree

Who has used a VR headset in the last 6 months?

51.2% Males, 46.3% Females and 2.5% Diverse

50.8%
are respondents ranged between 18 and 34 years of age

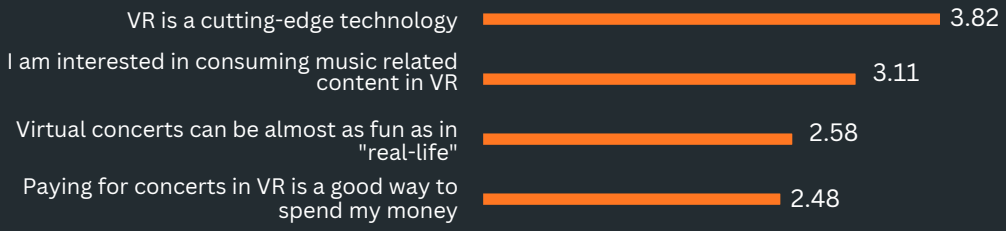
54.6%
are respondents hold a Bachelor or Postgraduate degree

RESULTS TECHNOLOGY & INNOVATION

01 VIRTUAL REALITY EXPERIENCES

To which extent to you agree with the following statements?

Items measured in a 1 (Fully disagree) - 5 (Fully agree) Likert type scale.



73.4%

of respondents in Germany agree or fully agree that virtual reality is a **cutting-edge technology**.

Further analysis revealed a **small positive correlation** between "interest in technology and innovation" and:

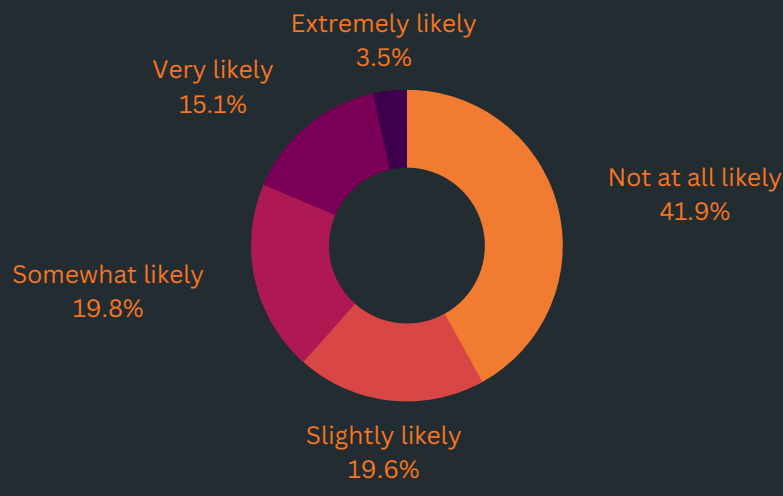
- VR is a cutting-edge tech (r=.217, p<.000)
- Virtual concerts can be almost as fun as in "real-life" (r=.275, p<.000)
- Paying for concerts in VR is a good way to spend my money (r=.289, p<.000)

Further analysis revealed a **moderate positive correlation** between "interest in technology and innovation" and:

- Being interested in consuming music related content in VR (r= -.346, p<.000)

No significant statistical differences were found when comparing perceptions of respondents of different genders towards virtual reality.

How likely is that you will use VR technology in the next 6 months?



01 TECHNOLOGY & INNOVATION

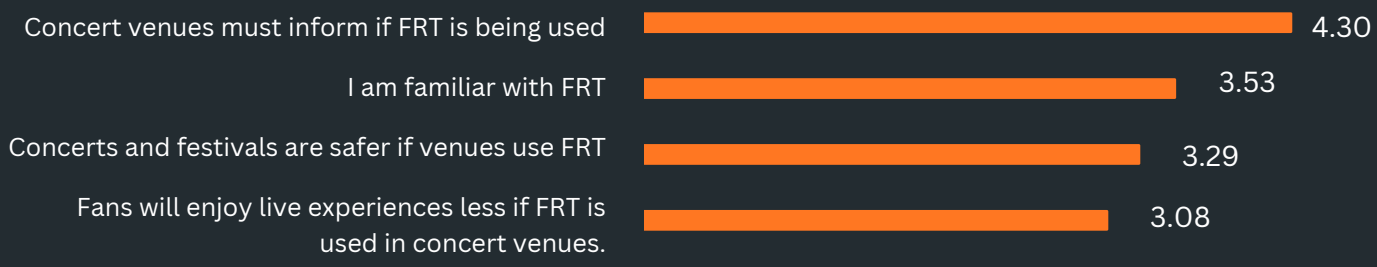
FACIAL RECOGNITION TECHNOLOGIES

RESULTS TECHNOLOGY & INNOVATION

01 FACIAL RECOGNITION TECHNOLOGIES

To which extent to you agree with the following statements?

Items measured in a 1 (Fully disagree) - 5 (Fully agree) Likert type scale.



84.8%

of respondents in Germany believe concert venues **must inform if FRT is being used during the event.**

23.9%

of respondents in Germany **disagree or fully disagree that venues will be safer when using FRT.**

38.8%

of respondents in Germany **agree or fully agree that fans will enjoy less if FRT is used ina venue.**

Further analysis revealed a **moderate positive correlation** between "interest in technology and innovation" and:

- Familiarty with FRT (r=.443, p<.000)
- Concerts being safer is FRT is used (r=.259, p<.000)

No correlation was found between "interest in technology and innovation" and considering that fans will enjoy less a concert if FRT is used or that venues should inform if FRT is used.

Respondents **over 60 years of age** were significantly less familiar with FRT than all other age groups.

No significant statistical differences were found when comparing the perceptions of respondents with different genders towards FRT.

KEY INSIGHTS.

01 TECHNOLOGY & INNOVATION

- **Artificial intelligence (AI)**. In general, respondents are aware of AI being used for music composition and are rather accepting of it. Nevertheless, educational level, and especially interest in technology innovation, revealed to be the strongest factors for the acceptance of artificial creativity in music. Overall, implementation of AI in music must consider context and profile of the audience.

- **Virtual reality (VR)**. Despite being perceived as a cutting-edge technology, the ownership of VR devices remains extremely low and does the interest in future purchases. The interest in consuming music related content in VR also remains low. Virtual experiences are also perceived as not being as enjoyable as real-life ones. Thus, raises concerns towards the development of content for the metaverse. In sum, much further research is needed to enhance the adoption of VR in the music sector and outside of it.

- **Facial recognition technologies (FRT)**. Personal privacy remains a very important issue. In general, the perception towards facial recognition technologies during hedonic experiences remains rather negative, and fans demand venues to inform if it is being used. It remains unclear whether it affects the enjoyment of live experiences. Age remains an important factor and senior respondents are less familiar. In sum, its implementation must be made with great care, with clear communication to fans.

SUSTAINABLE CONSUMPTION

02 RATIONALE OF QUESTIONS.

In the 2022 edition of the Fan Monitor, we addressed the following three important topics related to sustainable consumption:

- Attitude towards sustainability and climate change. The world is facing unprecedented environmental challenges. Sustainable production and consumption are pivotal steps in contributing to a healthy environment. But do fans even consider sustainability to be an important topic? To which extent to they consider climate change to be a threat to humankind? Do they think, for example, that the music industry should do more to promote sustainable behaviours?

- Sustainable consumption behaviours during concerts. Concerts represents a form of hedonic experiences. In such moments we often forget about the consequences of our behaviours, mostly due to the high affective responses. So how to fans evaluate their sustainable consumption behaviours during live concerts? Which specific sustainable behaviours have they mostly adopted? And how to they evaluate the actions taken by the industry to deliver sustainable live events?

- Communicating sustainable consumption. We are far from reaching the sustainable development goals. One of the main reasons is communication. In this context, artists can truly help. But how do fans feel when artists promote content related to climate change and sustainability? Do they find it risky for artists to be involved in such topics?

SAMPLE

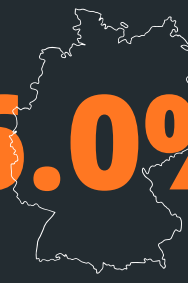
1,290
Valid respondents residing in Germany

INTEREST IN SUSTAINABILITY AND CLIMATE CHANGE

Overall interest in technology and innovation.
Items measured in a 1 (Not at all interested) - 5 (Very high) Likert type scale.

59.0%

of respondents are **very** and **extremely** interested in sustainability and climate change.



6.0%

of respondents in are **not at all interested** in in sustainability and climate change.

78.3%

of respondents did **not** participated in any climate activism events in the last 12 months.

15.7%

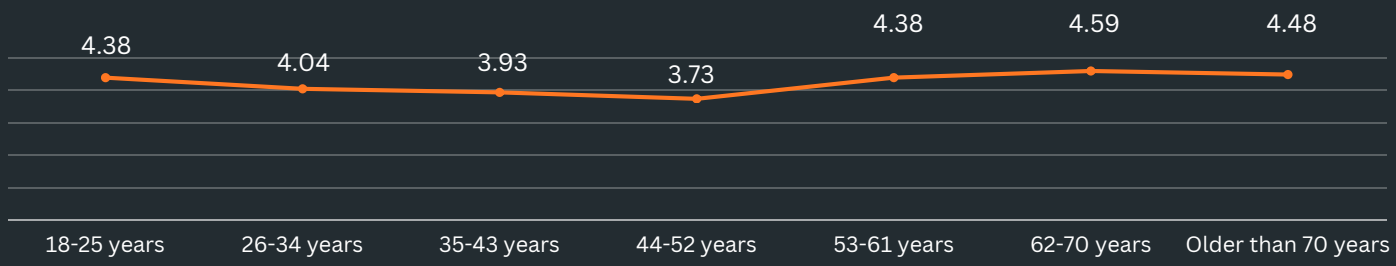
of respondents participated in **1 or 2** climate activism events in the previous 12 months.

RESULTS

02 SUSTAINABLE CONSUMPTION

Climate change represents a serious threat to humankind.

Items measured in a 1 (Fully disagree) - 5 (Fully agree) Likert type scale.



Further analysis revealed a **statistically significant difference** in perception between 44-52 year old participants and respondents:

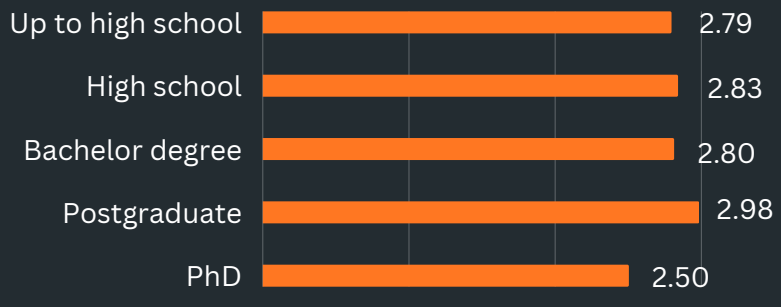
- 18-25 (p=.000)
- 53-61 (p=.008)
- 62-70 (p=.000)
- Older than 70 (p=.012)

80.6%

of respondents in Germany agree or fully agree that **climate change is a serious threat to humankind**.

My individual consumption behaviors have little impact on the environment.

Items measured in a 1 (Fully disagree) - 5 (Fully agree) Likert type scale.



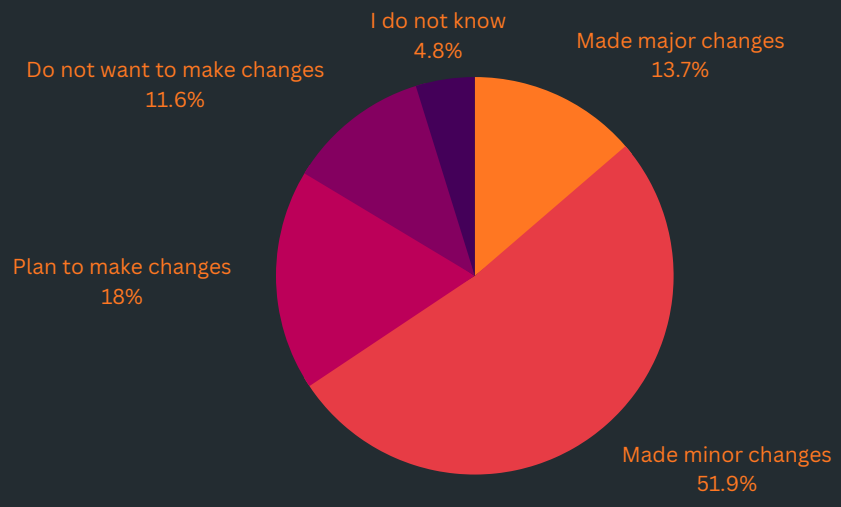
34.6%

of respondents in Germany agree or fully agree that **their consumption behaviors have little impact on the environment**.

RESULTS

02 SUSTAINABLE CONSUMPTION

Which statement best describes how much you have changed your lifestyle to be more sustainable?



Who has made major changes to be more sustainable?

63.1%
are female respondents

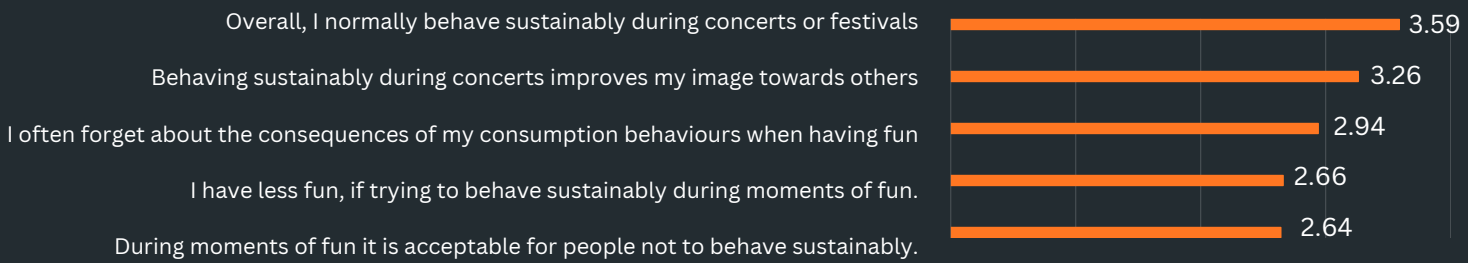
50.8%
are respondents aged between 26 and 43 years

58.5%
are respondents holdng a Bachelor, Masters or PhD

02 SUSTAINABLE BEHAVIORS DURING CONCERTS

To which extent to you agree with the following statements?

Items measured in a 1 (Fully disagree) to 5 (Fully agree) Likert type scale.



RESULTS SUSTAINABLE CONSUMPTION

02 SUSTAINABLE BEHAVIORS DURING CONCERTS

Regarding the last concert or festival you attended, which of these sustainable actions did you take?

Correctly disposed all personal litter

67.9%

46.8% 52.6%

Diverse < 1%

Used a carpool or public transport

53.5%

46.0% 53.2%

Diverse < 1%

Used digital ticket instead of printed paper

49.8%

50.8% 48.4%

Diverse < 1%

Used a reusable drink bottle

43.1%

43.4% 56.1%

Diverse < 1%

Ordered mostly plant based food

18.5%

38.5% 59.3%

Diverse < 1%

Read the environmental policies of the event

17.7%

61.6% 38.4%

Diverse < 1%

Tried to influence sustainable behaviors in others

12.0%

39.7% 58.6%

Diverse < 1%

Purchased sustainable merchandise

8.9%

56.8% 43.2%

Diverse < 1%

Offset flight when flying to the destination of the event

4.7%

65.2% 34.8%

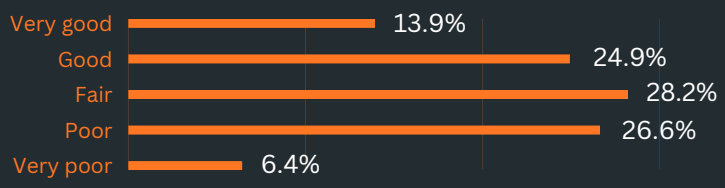
Diverse < 1%

RESULTS SUSTAINABLE CONSUMPTION

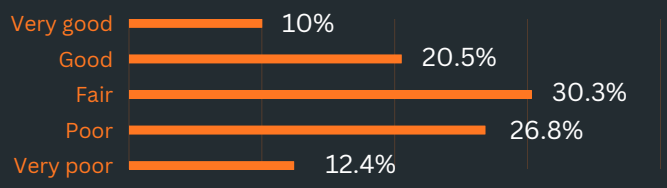
02 SUSTAINABLE BEHAVIORS DURING CONCERTS

From your experience, how do you evaluate the efforts done by concert and festival organizers in the following sustainable actions?

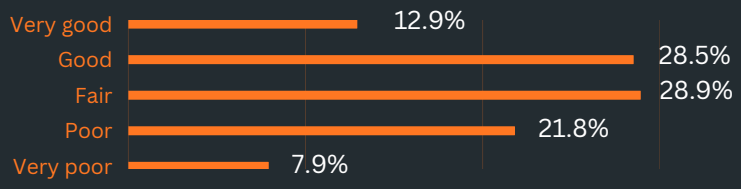
Helping fans better dispose personal waste



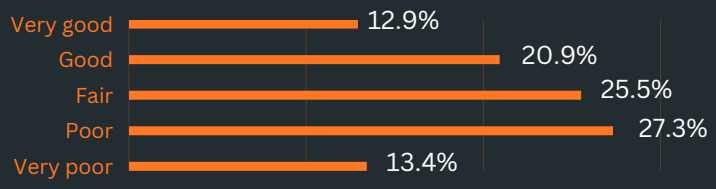
Offering appealing plant based food options



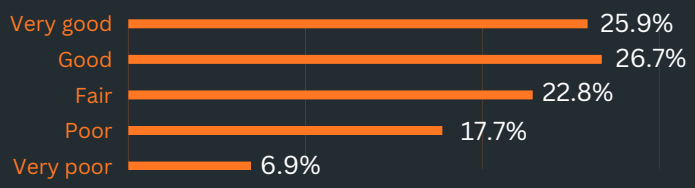
Sustainable mobility before and after the event



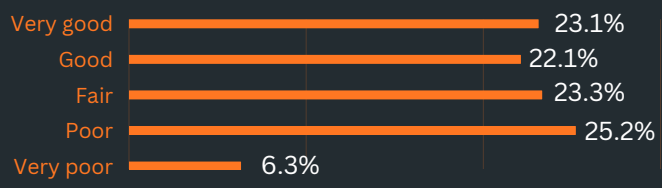
Selling sustainably produced merchandise



Implementing reusable cup schemes



Reducing overall use of plastic



RESULTS

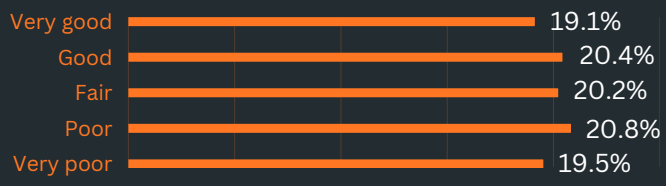
SUSTAINABLE CONSUMPTION

02

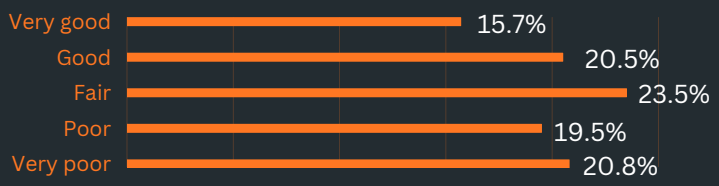
SUSTAINABLE BEHAVIORS DURING CONCERTS

From your experience, how do you evaluate the efforts done by concert and festival organizers in the following sustainable actions?

Using renewable energy



Having environmentally friendly sponsors

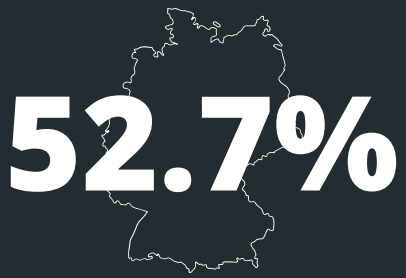


02

COMMUNICATING SUSTAINABILITY

To which extent to you agree with the following statements?

Items measured in a 1 (Fully disagree) to 5 (Fully agree) Likert type scale.

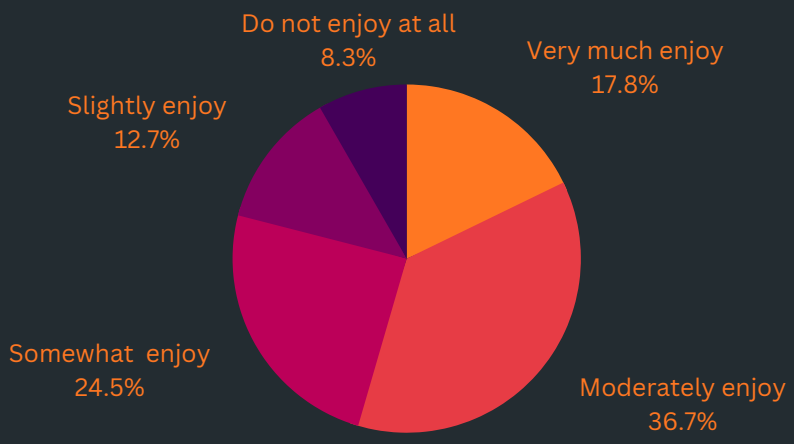


of respondents in Germany agree or fully agree that it is the role of artists to **raise awareness** towards climate and sustainability issues.

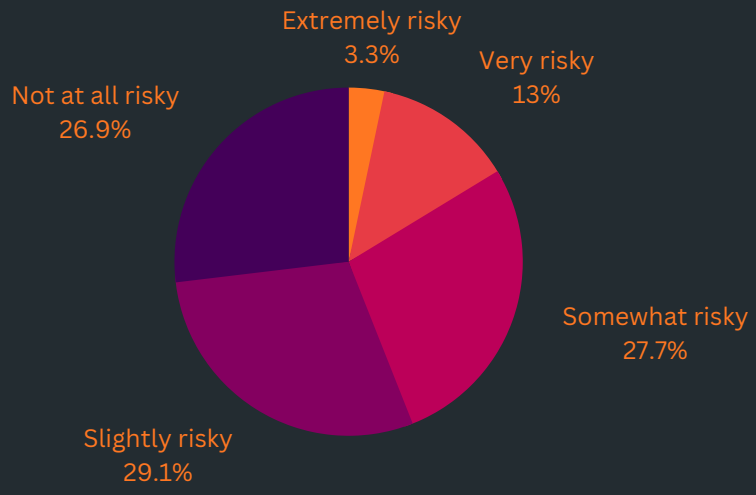
RESULTS SUSTAINABLE CONSUMPTION

02 COMMUNICATING SUSTAINABILITY

How much do you enjoy when your favorite artist promotes content related to climate change and sustainability?



How risky is it to the image of artists, to be associated with climate change and sustainability issues?



Who does **not** enjoy when their favorite artist promotes sustainability and climate change?

52.5% Males, 47.5% Females (diverse <1%)

39.5%
are respondents aged between 35 and 52 years

60.0%
are respondents hold up to a high school degree

Who finds it **risky** for artists to be associated with climate change and sustainability issues?

56.3% Males, 43.8% Females (diverse <1%)

75.1%
are respondents aged between 35 and 52 years

56.3%
are respondents hold up to a high school degree

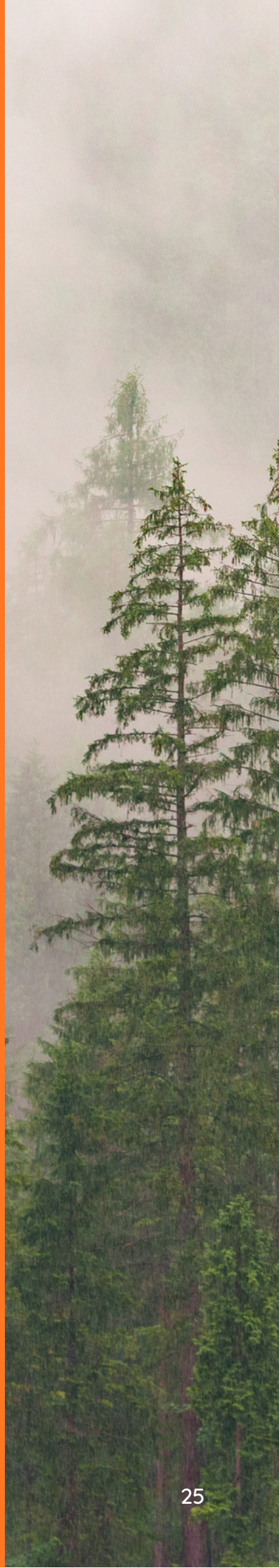
KEY INSIGHTS.

02 SUSTAINABLE CONSUMPTION.

- Attitude towards **sustainability and climate change**. The general attitude is very positive, and similar across genders, age and educational levels. However, the attitude is not reflected in participation in climate activism events. Despite the interest, in general respondents reported having made only minor changes to their consumption behaviors, with greater adoption from female and highly educated respondents.

- **Sustainable consumption behaviors during concerts**. Positive attitude towards sustainability was not translated to behaviors. Sustainable consumption was mostly seen in practices such as sustainable mobility, litter disposal, electronic tickets and personal bottles for plastic reduction. More advanced practices, such as carbon offsetting or purchase of circular merchandise had very low adoption.

- **Communicating sustainable consumption**. Respondents believe artists can influence behaviors and believe it is their role to do so. Fans also do not believe it is risky for artists to do be associated with climate change and sustainability issues. Once again, educational level played a role in predicting the acceptance of musicians communicating sustainability related issues.



POLICY RECOMMENDATIONS FOR POLICY MAKERS

2022 Edition

Live FM: FAN MONITOR

POLICY RECOMMENDATIONS FOR POLICY MAKERS

TECHNOLOGY & INNOVATION

1. **Artificial intelligence (AI)**: In view of the acceptance of artificial creativity in music, consider ways of ensuring authorship and copyrights for composers and/or programmers and protect existing rights.

2. **Artificial intelligence (AI)**: Consider ways of supporting artists, composers and music related institutions, negatively impacted by the further adoption of artificial creativity in music.

3. **Artificial intelligence (AI)**: Explore ways in which artificial creativity can be introduced in education to ensure familiarity and expertise.

4. **Facial recognition technologies (FRT)**: Actively encourage venues and organizers to clearly communicate when, and how, FRT is implemented. E.g.,, how the data is stored, analysed, and the purposes of use.

5. **Facial recognition technologies (FRT)**: Consider ways of supporting personal privacy in public spaces during live hedonic experiences, and of future use of sensitive consuemer data.

SUSTAINABLE CONSUMPTION

1. **Education**: Liaise with organizers to develop targeted communication strategies for individuals of different demographic profiles, to engage in sustainable consumption behaviors during live experiences.

2. **Reward systems**: Support organizers in implementing innovative incentive systems to drive faster adoption of sustainable consumption behaviors among individuals with positive attitude towards it during hedonic event experiences.

3. **Carbon offsetting**: Develop strategies to encourage consumers to offset carbon emission when in transit to and from hedonic event experiences.

4. **Circular products**: Develop measures to encourage the production, selling and consumption of circular products in hedonic events.

5. **Communication**: Liaise with artists and events to co-create messages to inspire sustainable consumption behaviours among music fans.

CONTACT

For a copy of this report or more information regarding the project, please contact:

Prof. Dr. Francisco Tigre Moura at **francisco.tigre-moura@iu.org** or go to the Live FM: Fan Monitor page at LiveInnovation.org/fan-monitor

REFERENCE

Tigre Moura, F.; Leschik. D. (2022). Live FM: Fan Monitor (2022 Edition). An analysis of attitudes and behaviors of music fans in Germany towards technology innovation and sustainable consumption. Retrieved from Live FM: Fan Monitor project, Germany: https://liveinnovation.org/fan-monitor

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WOULD YOU LIKE TO COLLABORATE ON THE 2023 EDITION OF THE FAN MONITOR?

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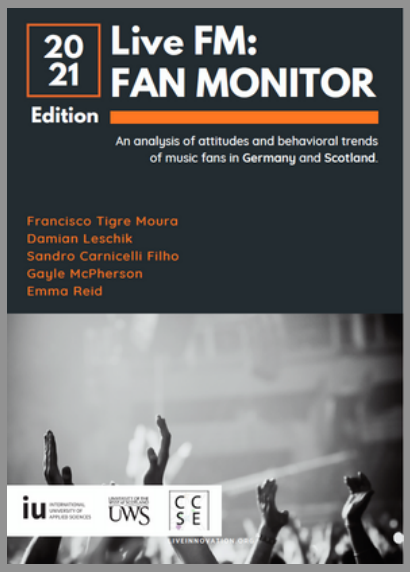
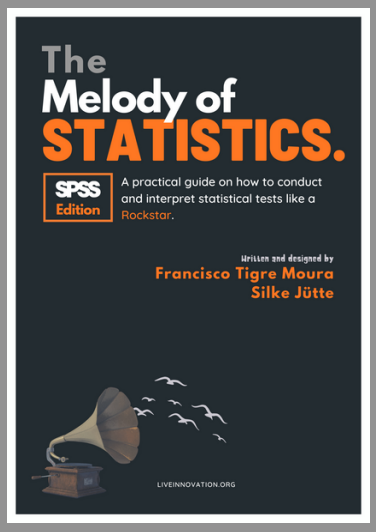
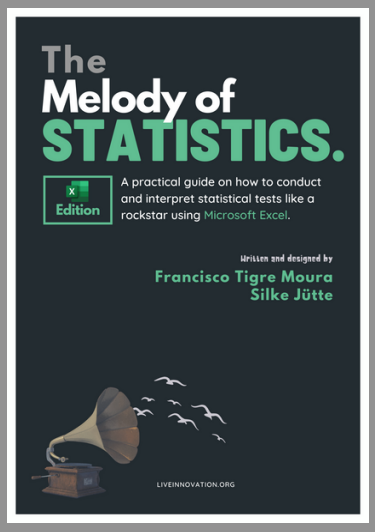
OTHER PUBLICATIONS

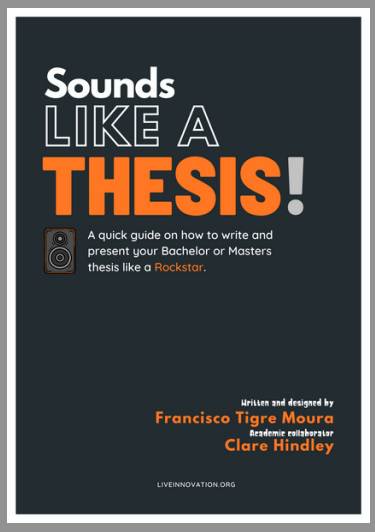
RESEARCH



EDUCATION







Research to collaborate.
Educate to inspire.

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