WEBINAR:

PSD2: How machine learning can help PSPs to meet modern consumers' digital demands

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mpe MERCHANT PAYMENTS ECOSYSTEM

Introductions

Alan Moss (Moderator), VP of Marketing @ Miura Systems Ltd.

Alan Moss is currently working as VP of Marketing at Miura Systems, a leading global provider of secure mobile acceptance technology. In parallel, Alan is Head of Fintech and Payments at the consulting company, BluSpecs Innovation.

Alan has over 20 years' experience in the electronic payments business, working with industry leaders such as Hypercom, Thales and Verifone, in a variety of roles from business development and product marketing to global relationship management. Alan also worked in international sales for De La Rue's security holographics and security print divisions.

Prior to working for BluSpecs, Alan was VP of Business Development at Verifone, where he was responsible for the deployment of new value-add applications and services in Europe. Whilst at Verifone, Alan was also a board member and Chairman of the General Assembly of Nexo, a leading pan-European standardization initiative promoting the interoperability of card payments.

Alan holds an International MBA from Madrid's leading business school, Instituto de Empresa, as well as a bachelor's degree from the University of London.

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Introductions

Fiona Wijngaards, Senior Enterprise Account Executive, EMEA

Fiona Wijngaards is a digital ecosystem expert with proven experience in payment and risk management consultancy. Fiona supports payments and ecommerce enterprise organizations with their risk management priorities in the ongoing fight against fraud and better customer experiences.

Peter Marx, Data Science Lead

Peter manages the global data science team of Ekata, working closely with our product team to ensure quick response on customer requests while working on new products and model improvements. Peter is responsible to build models which can increase our predictive power to fight online fraud.

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LINKING DIGITAL IDENTITY BACK TO HUMANITY

Mission:

Be the global standard in digital identity verification via name, email, phone, address and IP with a primary focus on high scale/very low latency transaction processing, to combat cyberfraud and enable a frictionless customer experience.

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Agenda

Research: Speed, trust, and fraud—today's consumers online

Interplay: Friction, trust, and lost revenue

Regulation: Impact of PSD2 on PSPs

Data and Machine Learning: How data and machine learning can help PSPs improve consumers' digital experiences
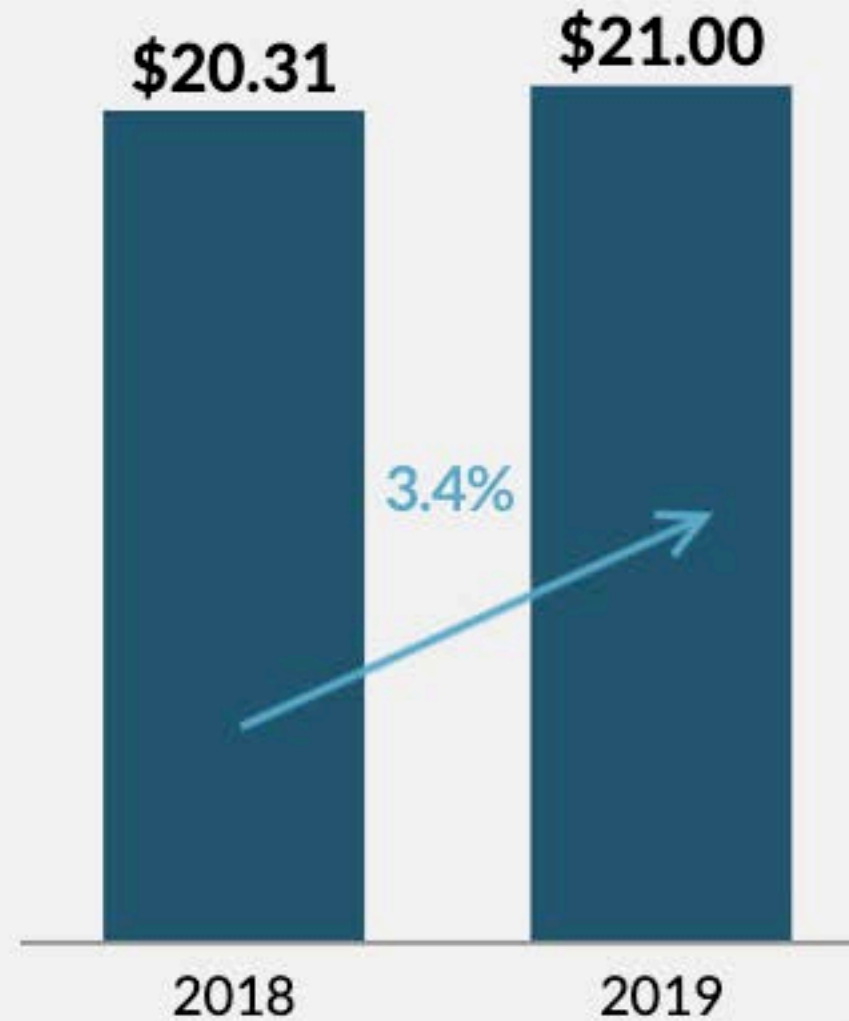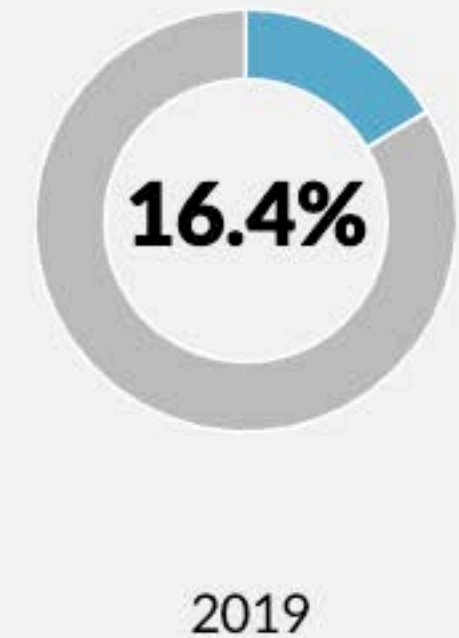
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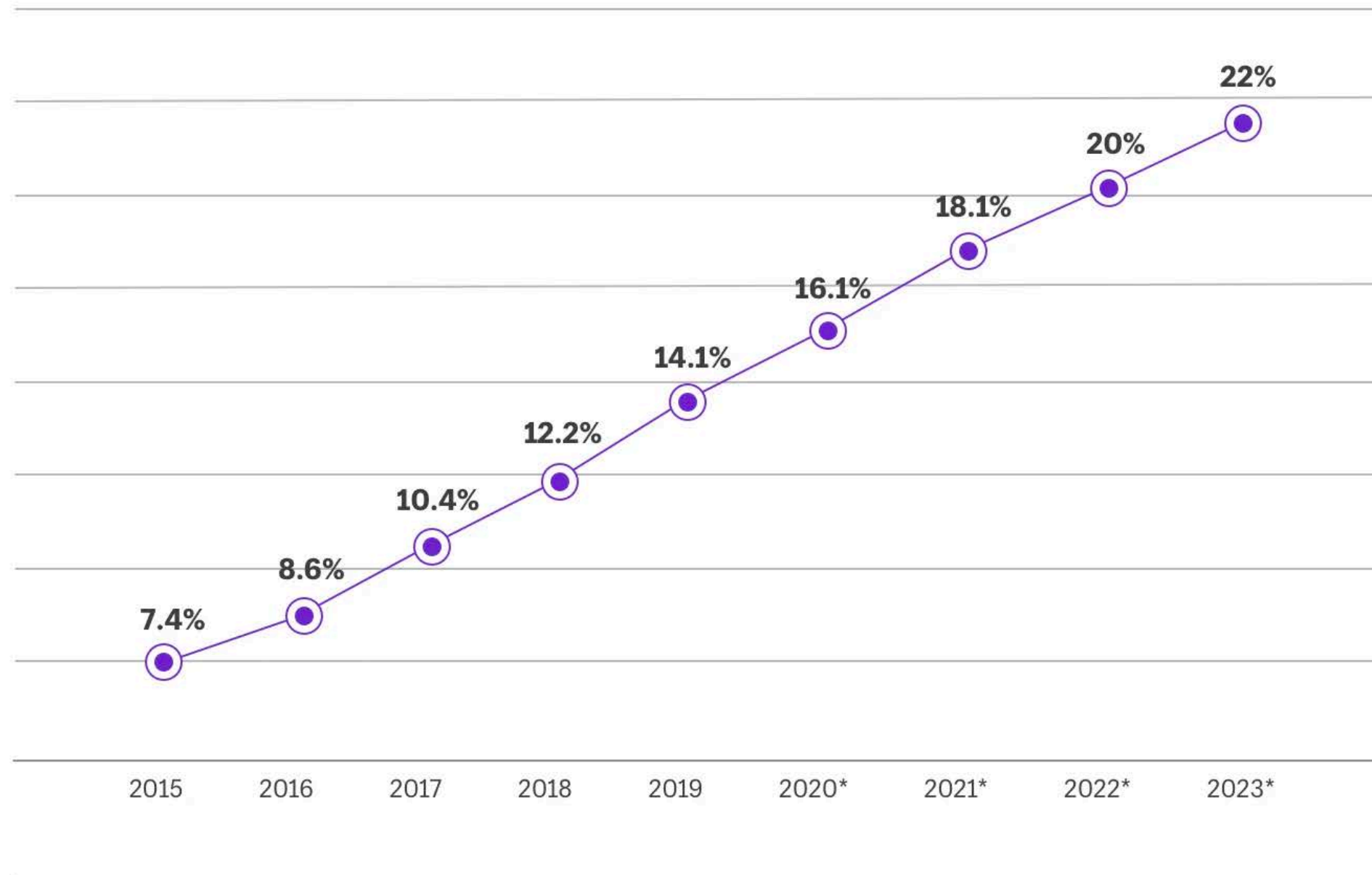# Global Retail Sales, in $ Trillions

Ecommerce sales

$2.93
2018

17.9%

$3.46
2019

Total retail sales

$20.31
2018

$21.00
2019

3.4%

Web penetration

16.4%

2019

Source: Digital Commerce 360 projections; November 2019

Ecommerce Share of Global Retail

22%

20%

18.1%

16.1%

14.1%

12.2%

10.4%

8.6%

7.4%

| 2015 | 2016 | 2017 | 2018 | 2019 | 2020* | 2021* | 2022* | 2023* |

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Rising Consumer Expectations

Payments & shipping

Digital goods

Digital services

Ekata commissioned Vanson Bourne to conduct market research

Research Demographics

Country

Gender

Age

Netherlands 14%

US 29%

France 14%

Germany 14%

UK 14%

Canada 15%

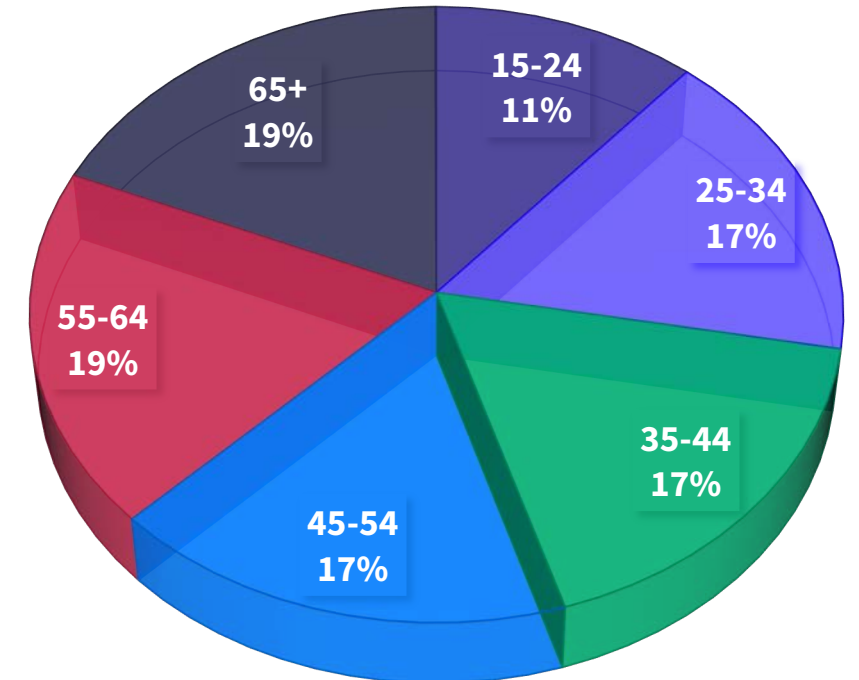Male; 41%

Female; 59%

65+ 19%

15-24 11%

25-34 17%

55-64 19%

35-44 17%

45-54 17%
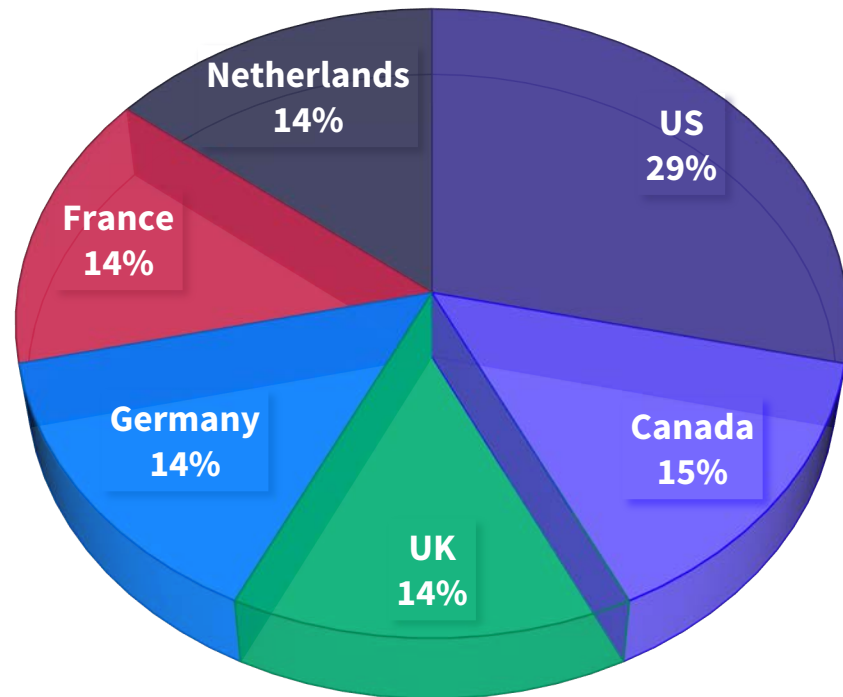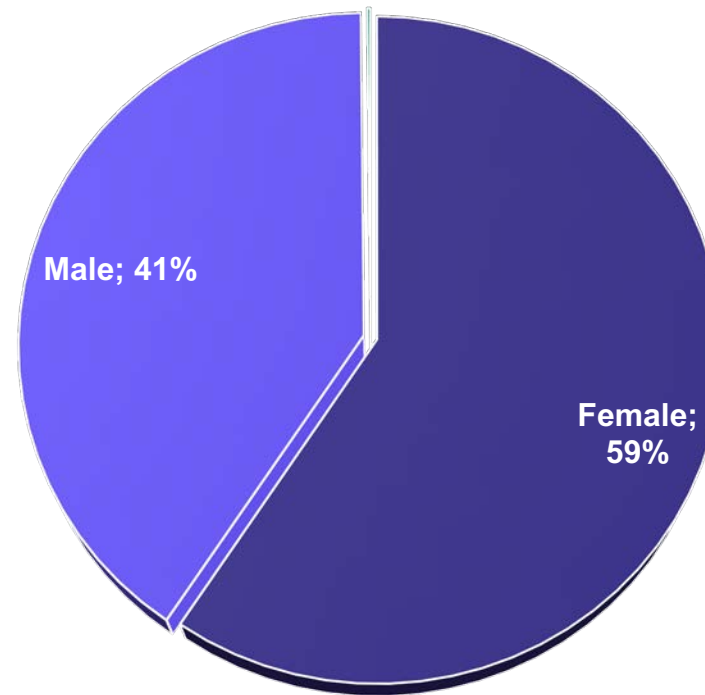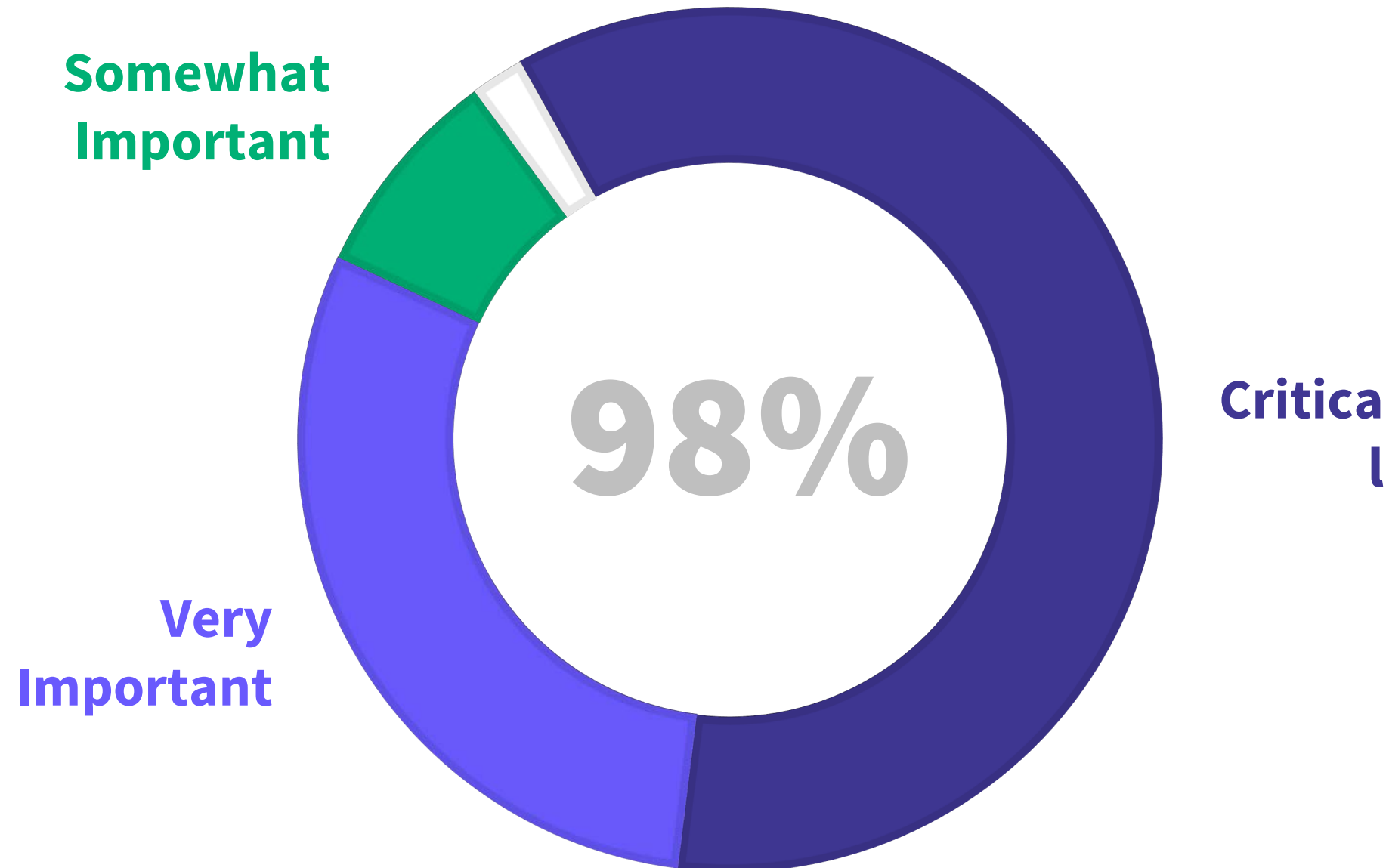
Total ~7,000 consumers interviewed

Key Areas of Focus for Digital Commerce

1. Importance of **Trust**

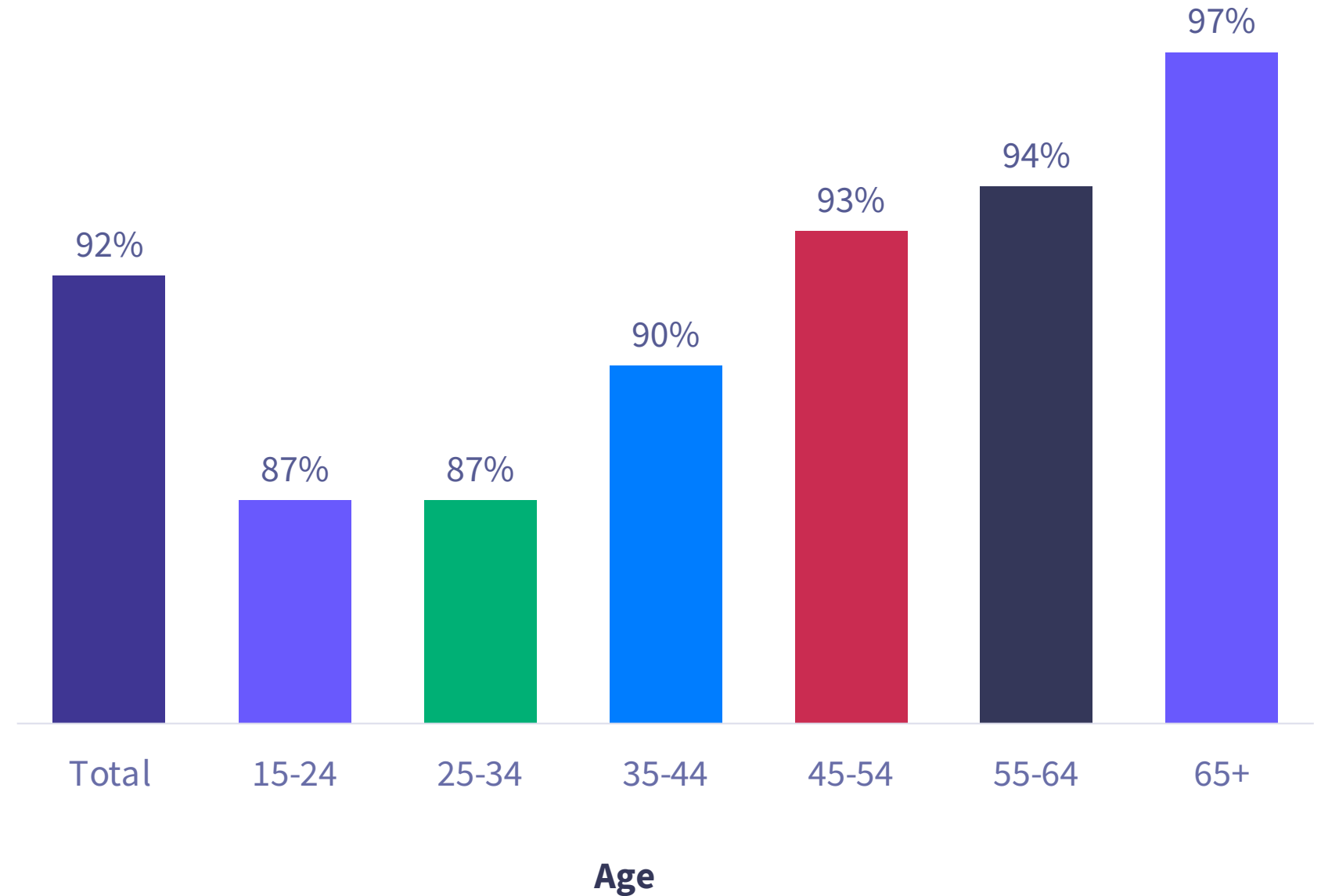2. Concerns about **Fraud**

3. **Friction** Frustrations

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Importance of Trust

Does Trust Matter for Online Transactions?

Somewhat Important

Very Important

Critical

98%

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Is Trust More Important Than Ever?

92% agree

Trust (of companies) is an issue that's becoming increasingly important for consumers

97%
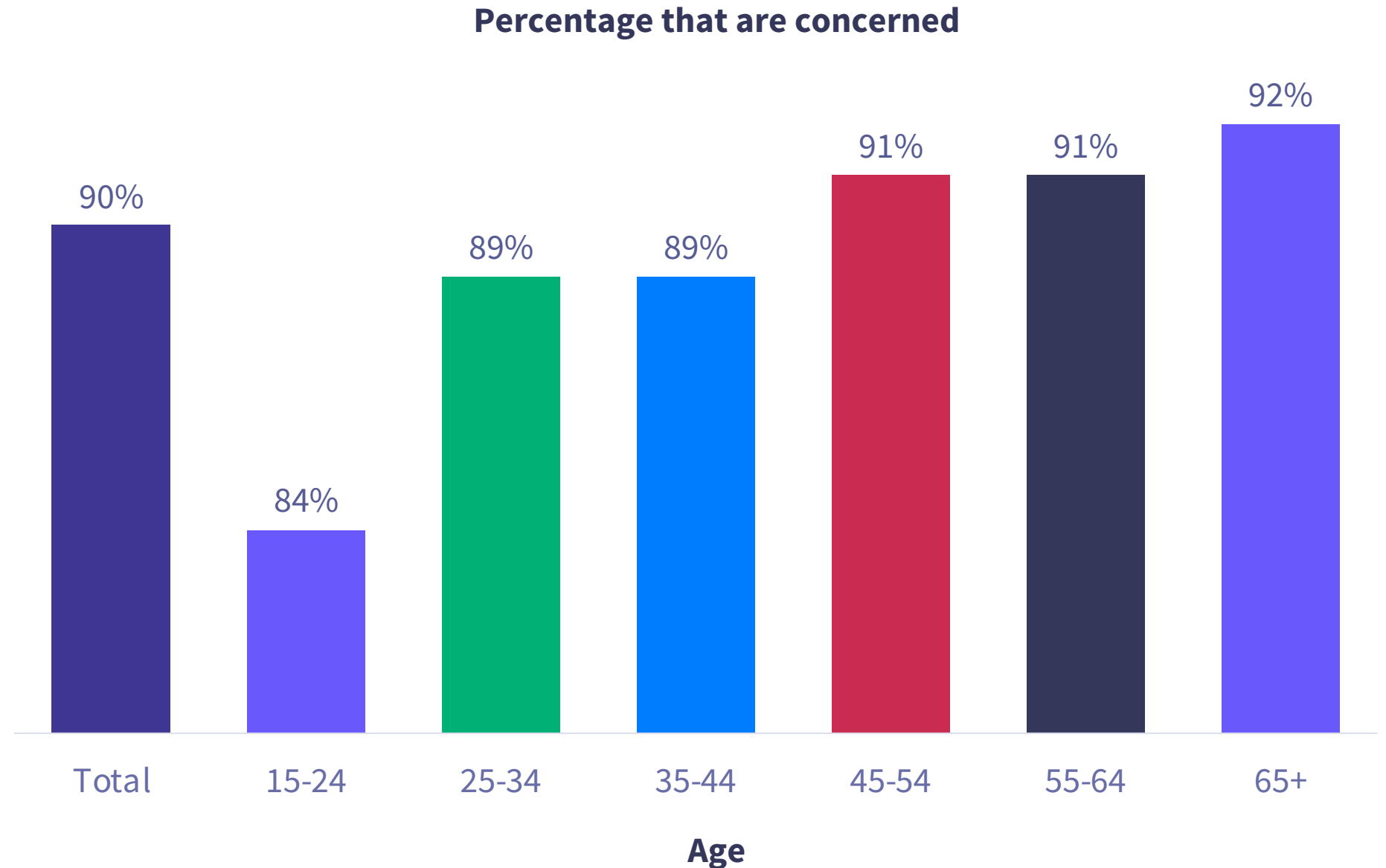94%
93%
92%
90%
87%   87%

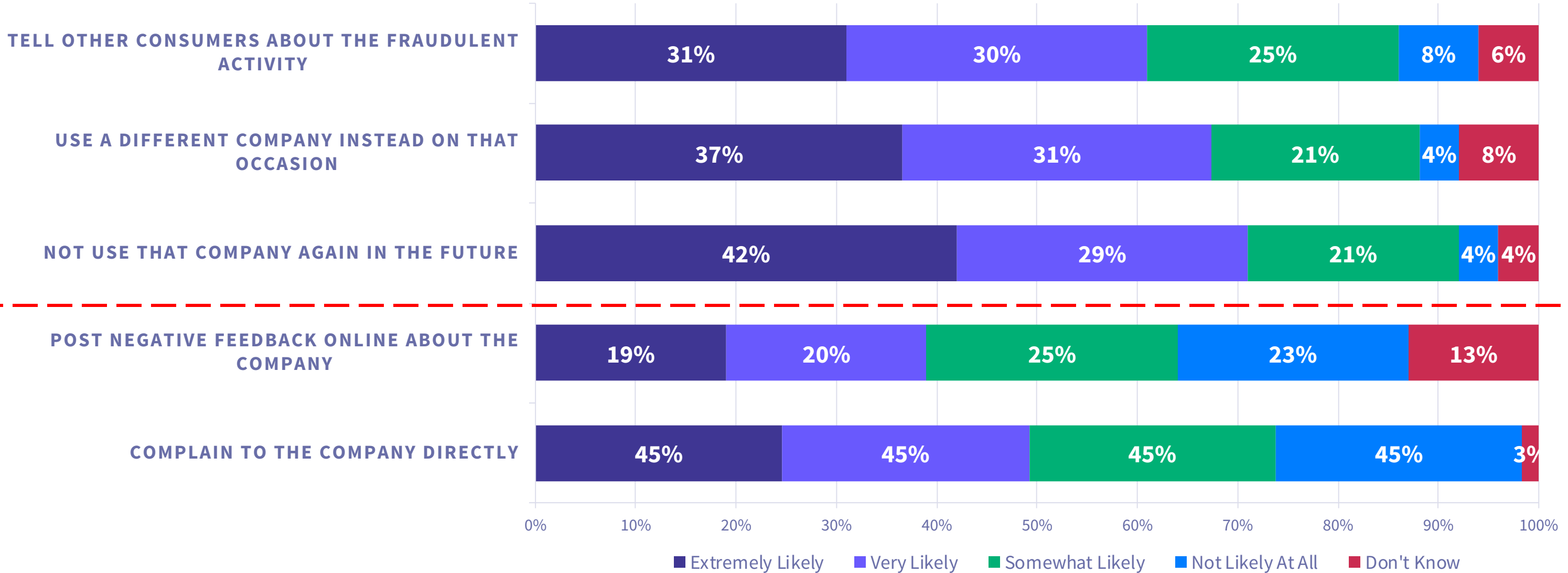Total   15-24   25-34   35-44   45-54   55-64   65+

Age

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Concerns About Fraud

Concerns About Identity Fraud

70%

Very to extremely concerned about being victims of fraud

Percentage that are concerned

90%	84%	89%	89%	91%	91%	92%
Total	15-24	25-34	35-44	45-54	55-64	65+

Age

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Impact of Fraud on Consumers' Behavior

	Extremely Likely	Very Likely	Somewhat Likely	Not Likely At All	Don't Know
TELL OTHER CONSUMERS ABOUT THE FRAUDULENT ACTIVITY	31%	30%	25%	8%	6%
USE A DIFFERENT COMPANY INSTEAD ON THAT OCCASION	37%	31%	21%	4%	8%
NOT USE THAT COMPANY AGAIN IN THE FUTURE	42%	29%	21%	4%	4%
POST NEGATIVE FEEDBACK ONLINE ABOUT THE COMPANY	19%	20%	25%	23%	13%
COMPLAIN TO THE COMPANY DIRECTLY	45%	45%	45%	45%	3%

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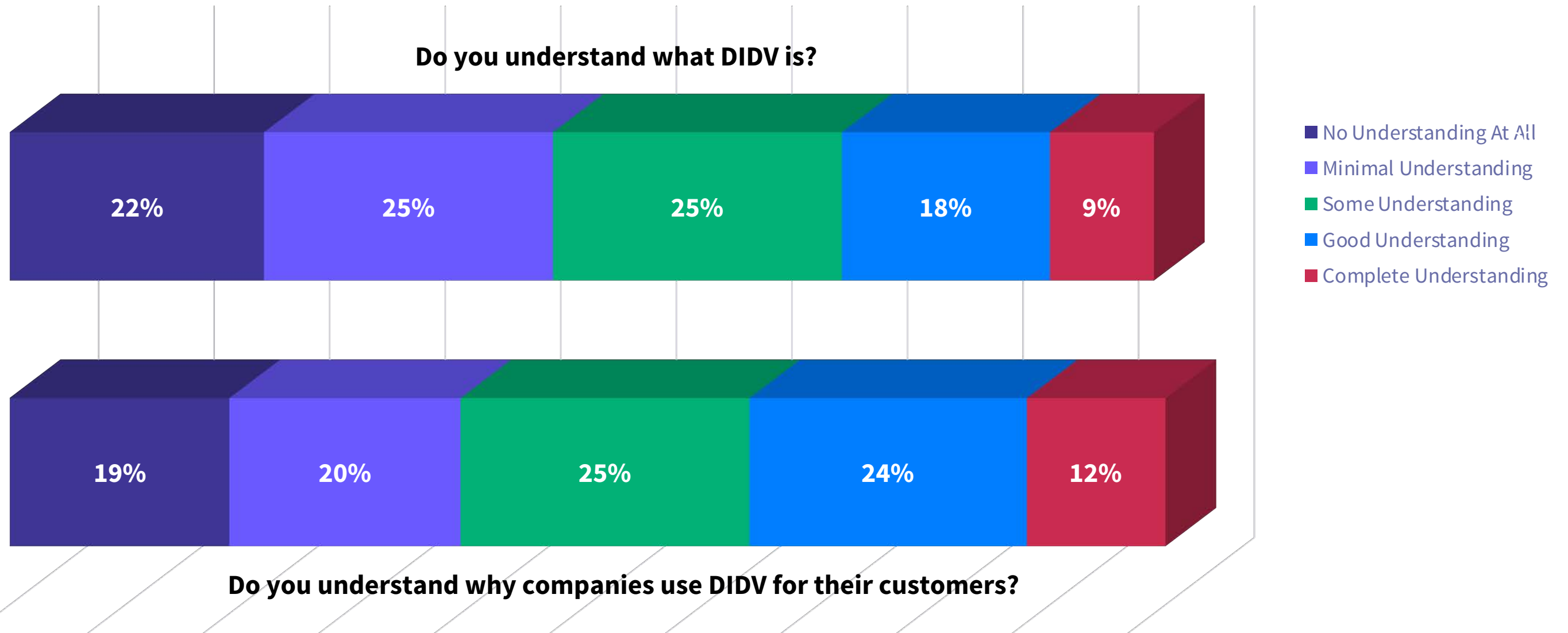# Who's Responsible for Fraud Avoidance?

5%

33%

61%
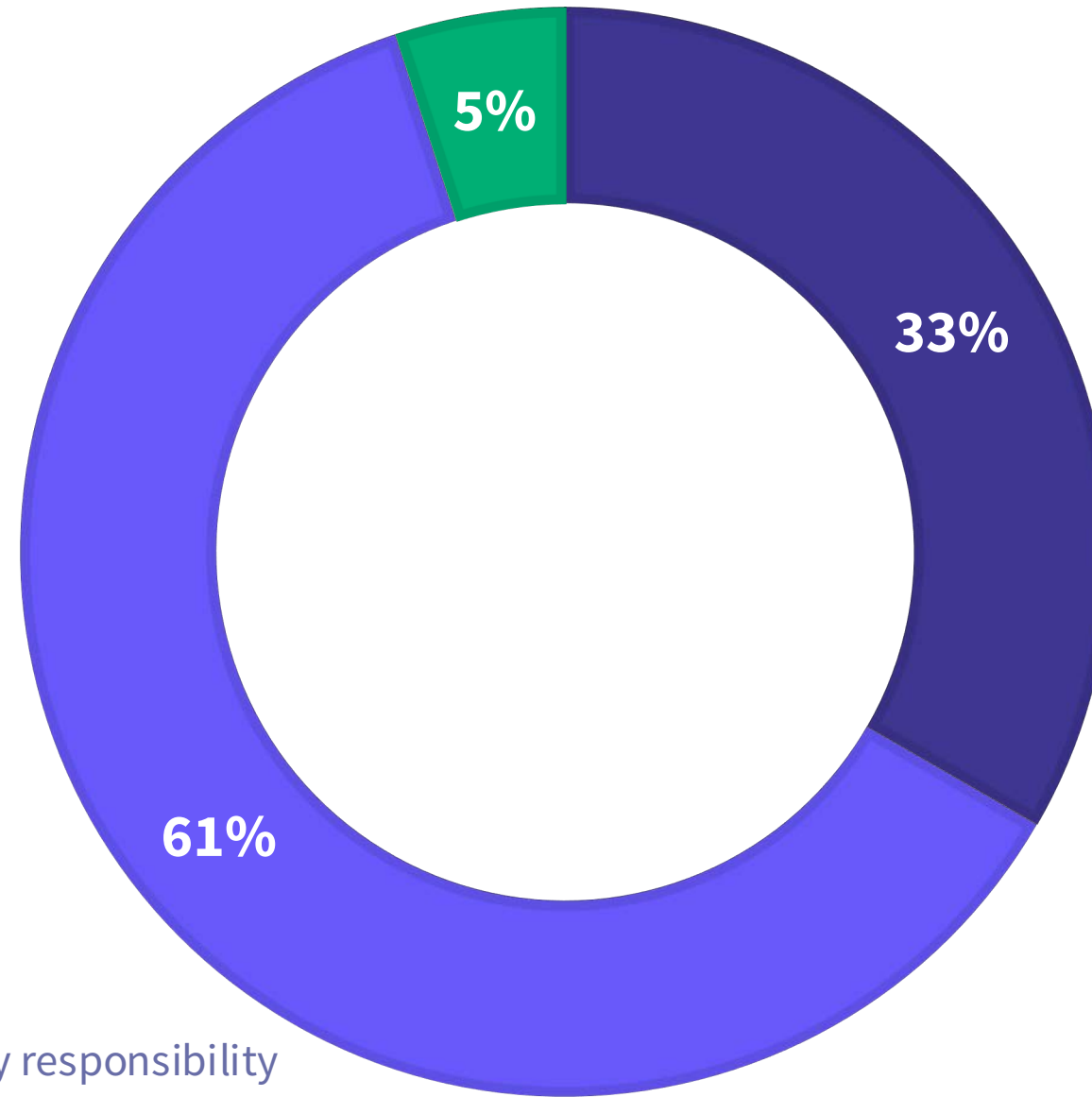
- ■ It is my responsibility
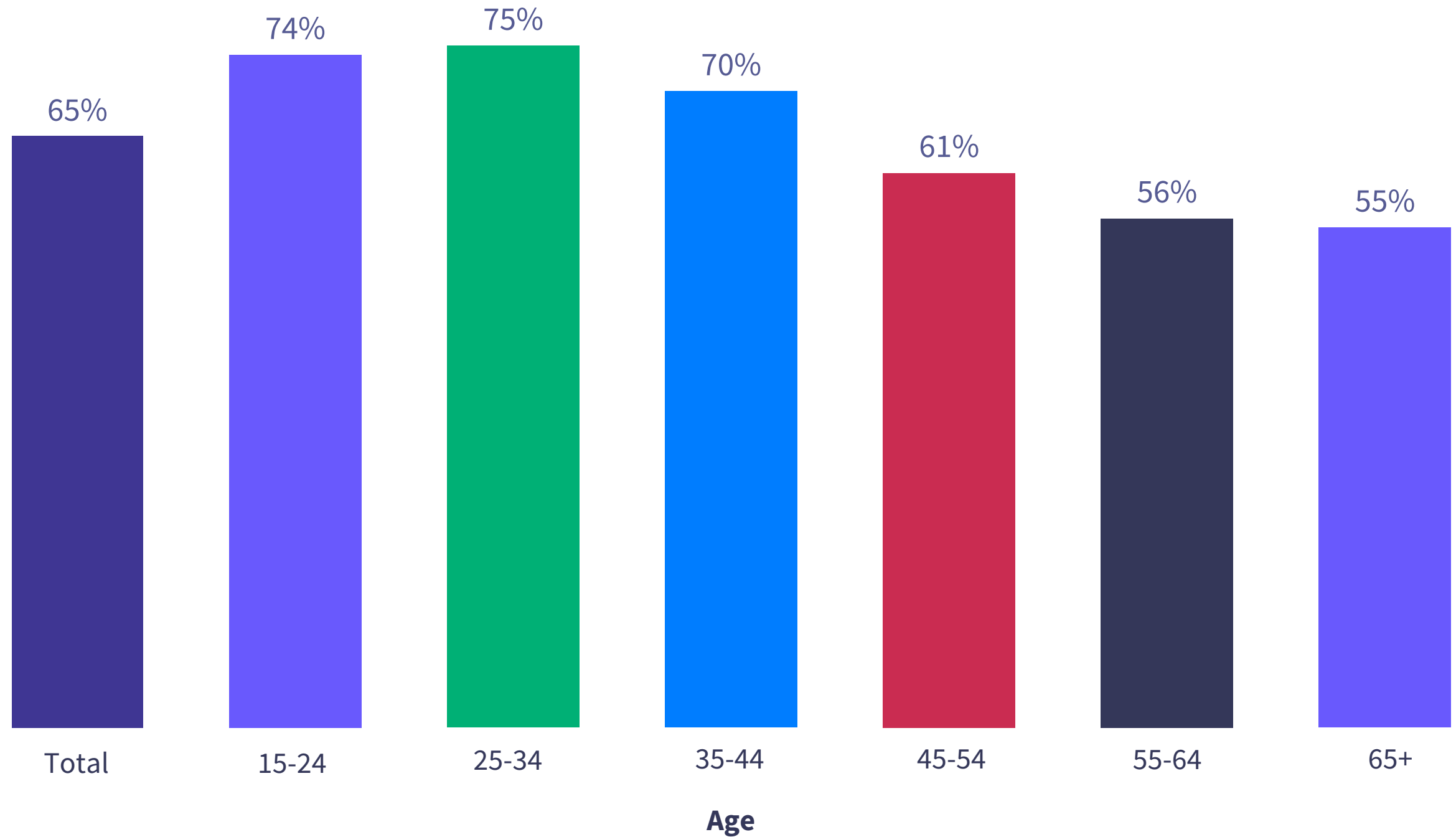- ■ It is the companies that have access to my personal data that are responsible
- ■ Don't know

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Friction Frustration
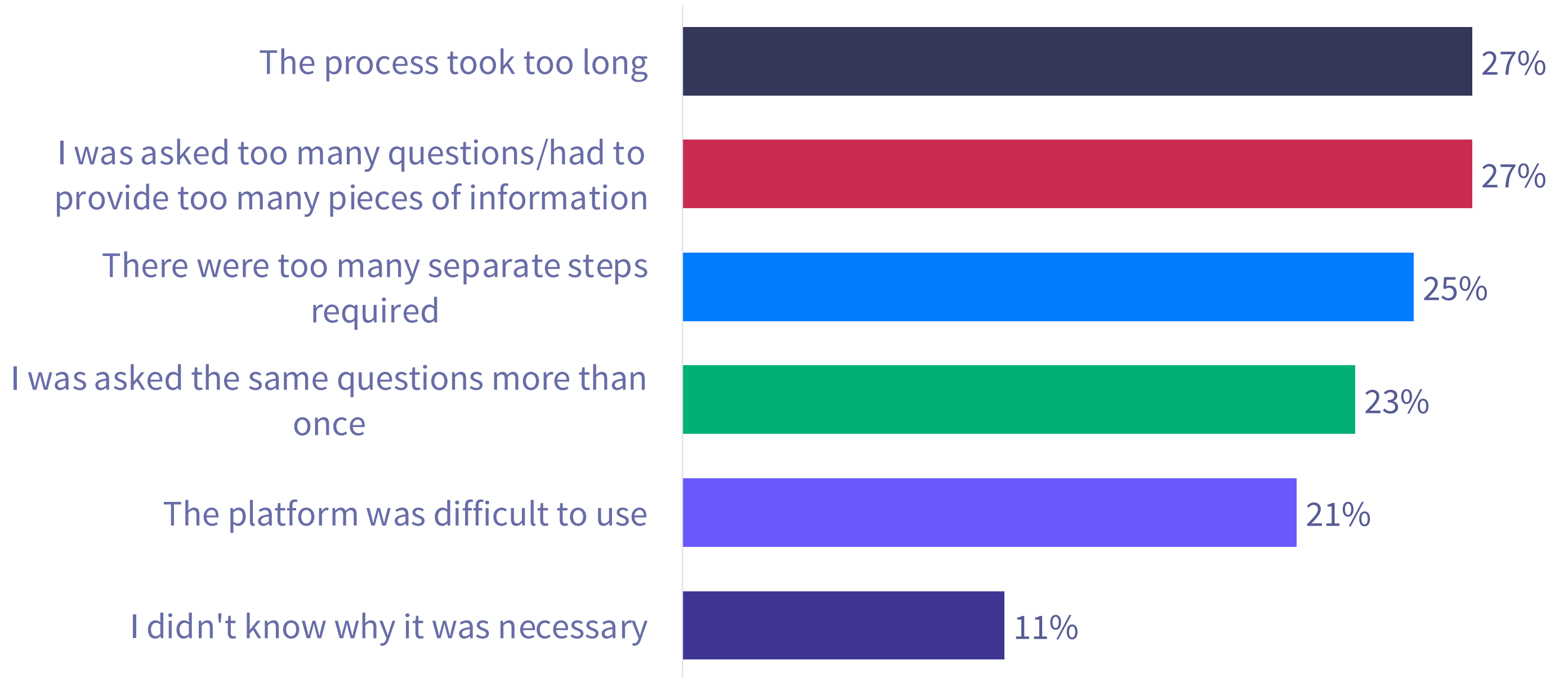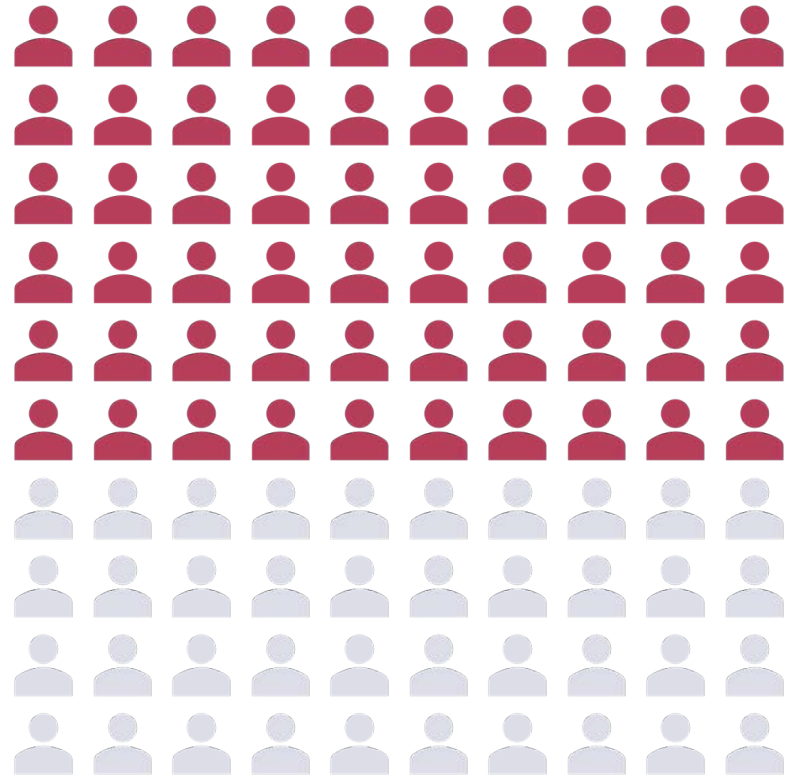
Do Consumers Understand Your Side (DIDV)?

Do you understand what DIDV is?

No Understanding At All	Minimal Understanding	Some Understanding	Good Understanding	Complete Understanding
22%	25%	25%	18%	9%

No Understanding At All	Minimal Understanding	Some Understanding	Good Understanding	Complete Understanding
19%	20%	25%	24%	12%

Do you understand why companies use DIDV for their customers?

Legend:
- No Understanding At All
- Minimal Understanding
- Some Understanding
- Good Understanding
- Complete Understanding

Does DIDV = Frustration for Consumers?

Causes of Consumer DIDV Frustration

The process took too long	27%
I was asked too many questions/had to provide too many pieces of information	27%
There were too many separate steps required	25%
I was asked the same questions more than once	23%
The platform was difficult to use	21%
I didn't know why it was necessary	11%

DIDV Consumer Drop-outs

60+%
abandonment

Respondents had abandoned or dropped out of an account creation or transaction because of frustration caused by the digital identity verification process

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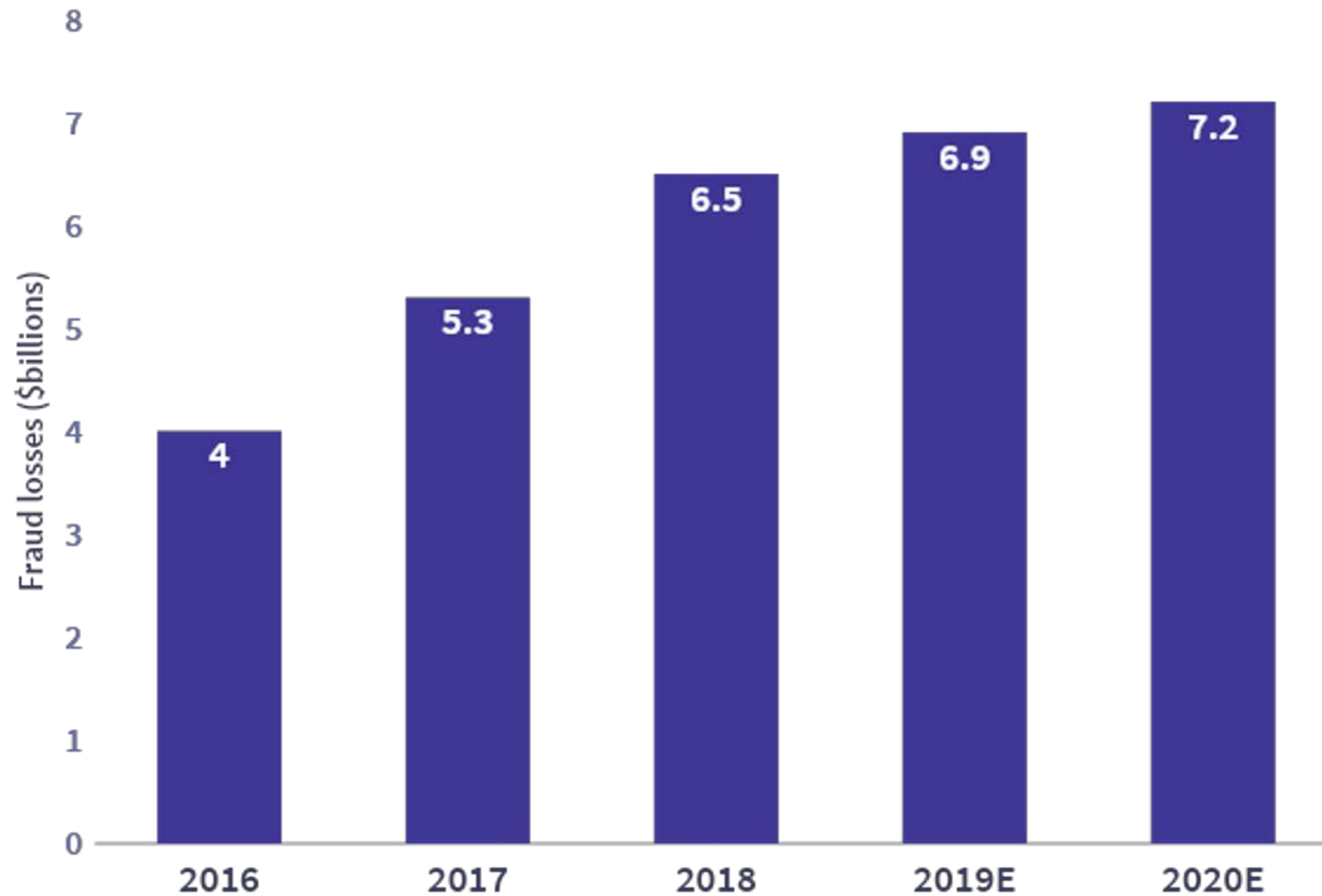# The interplay between, friction, trust, and revenue
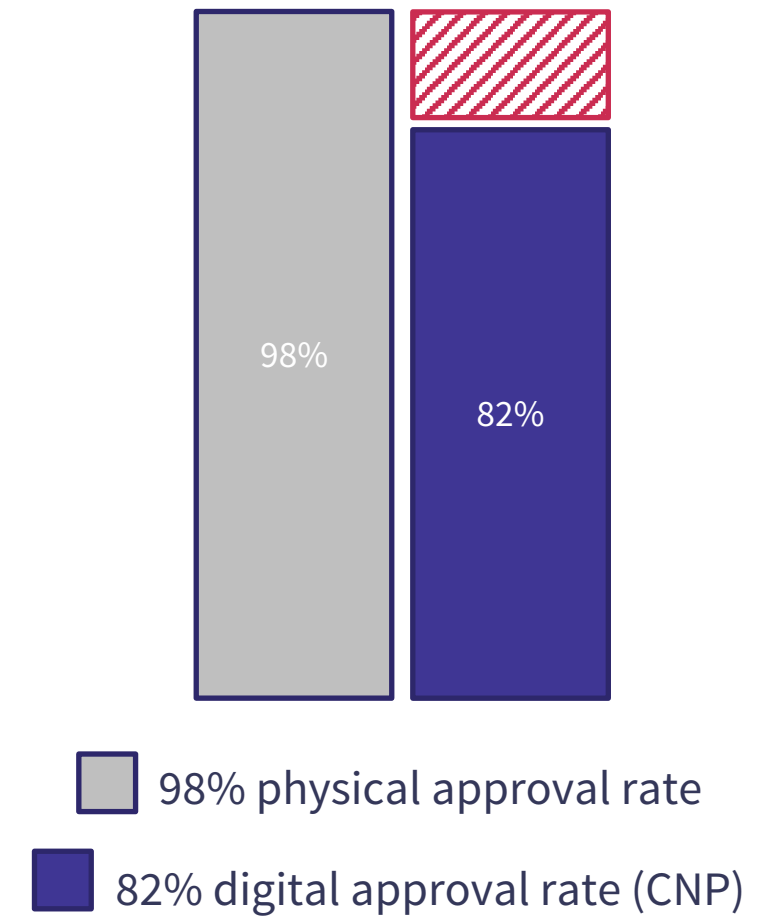
Security & Friction

92% **agree**

"I want a **fast, frictionless experience** but I also want it to be as **trustworthy and secure as possible** when I use a company's digital platform"

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Balancing Fraud & Friction

Online fraud increasing[1]

Fraud losses ($billions)

- 2016: 4
- 2017: 5.3
- 2018: 6.5
- 2019E: 6.9
- 2020E: 7.2

Lower online authorization rates[2]

98%

82%

□ 98% physical approval rate

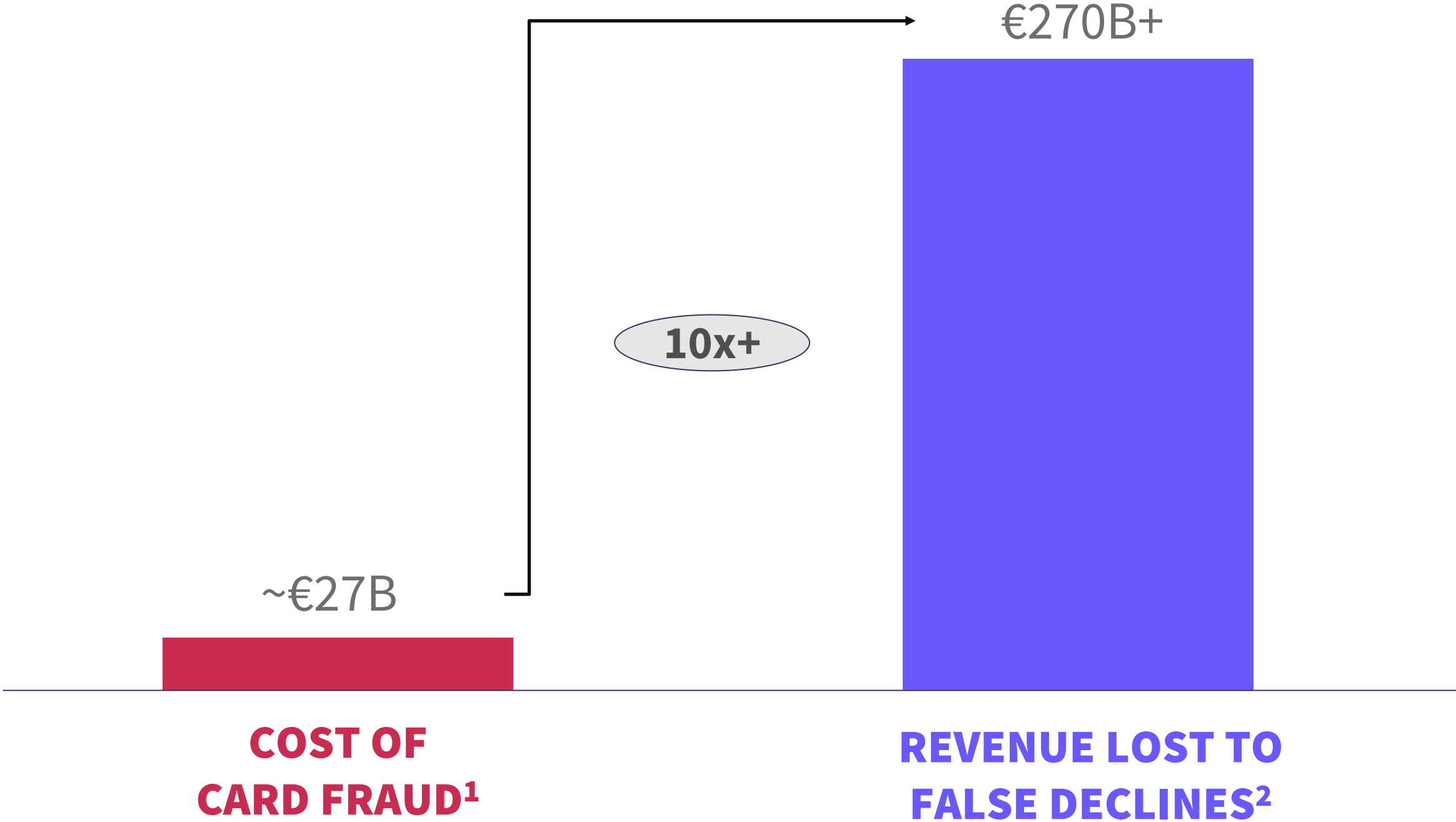■ 82% digital approval rate (CNP)

1. LexisNexis: The 2017 True Cost of Fraud Report.
2. Mastercard. October 2017 through September 2018 data, across all card types. 2018.

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The Money Slide

€270B+

10x+

~€27B

COST OF CARD FRAUD[1]

REVENUE LOST TO FALSE DECLINES[2]

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FRICTION

FRAUD

FALSE DECLINES

TRUST

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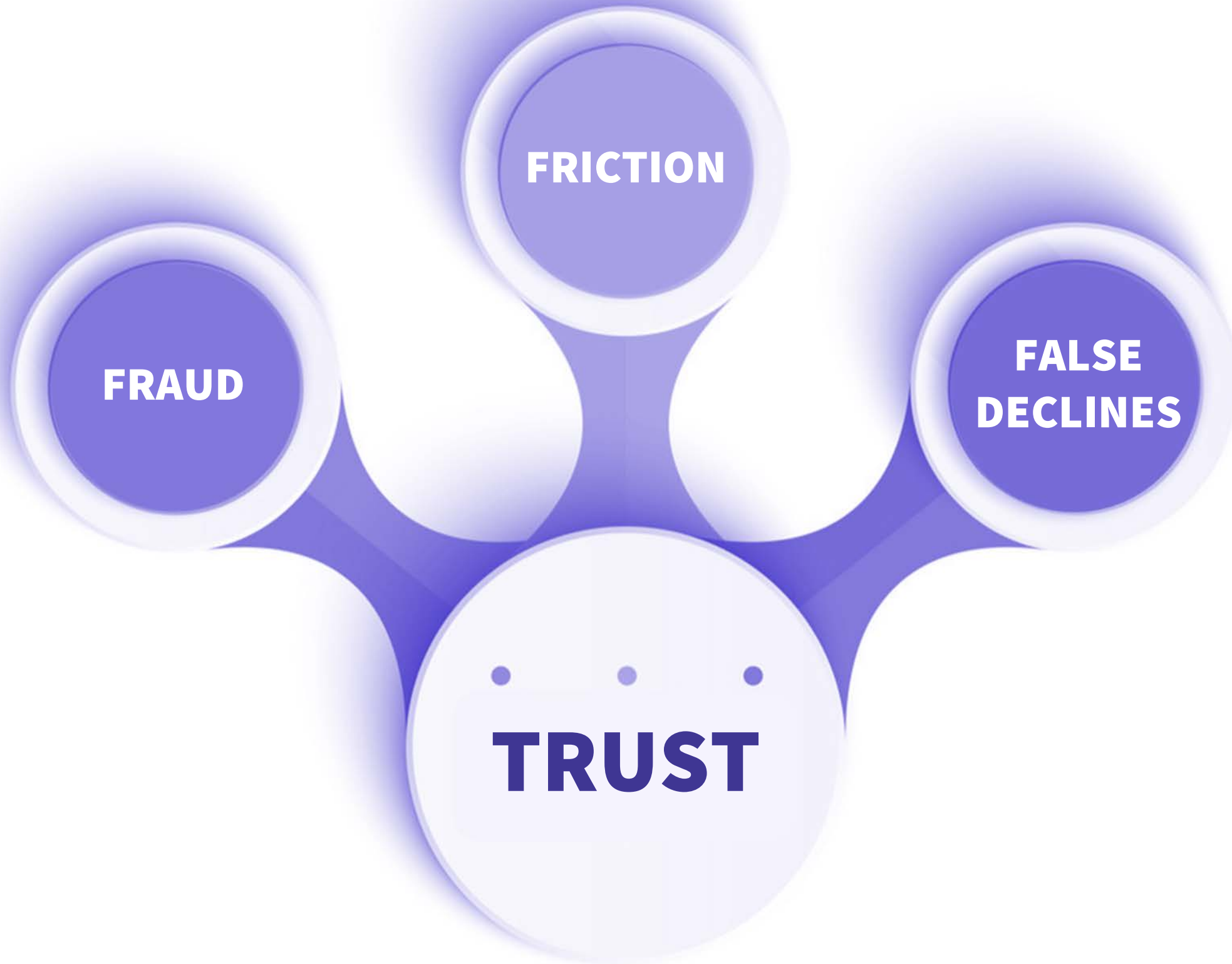
PSD2 SCA Intent: Improve Consumer Trust

European Banking Authority's Opinion on PSD2 SCA

The revised Payment Services Directive (PSD2, Directive 2015/2366/EU), proposed by the European Commission in July 2013 PSD2 became applicable on 13 January 2018. It facilitates innovation and competition in the EU retail payment market. It gives consumers more and better choice and introduces higher security standards for online payments. This makes consumers more confident when buying online.

TRUST

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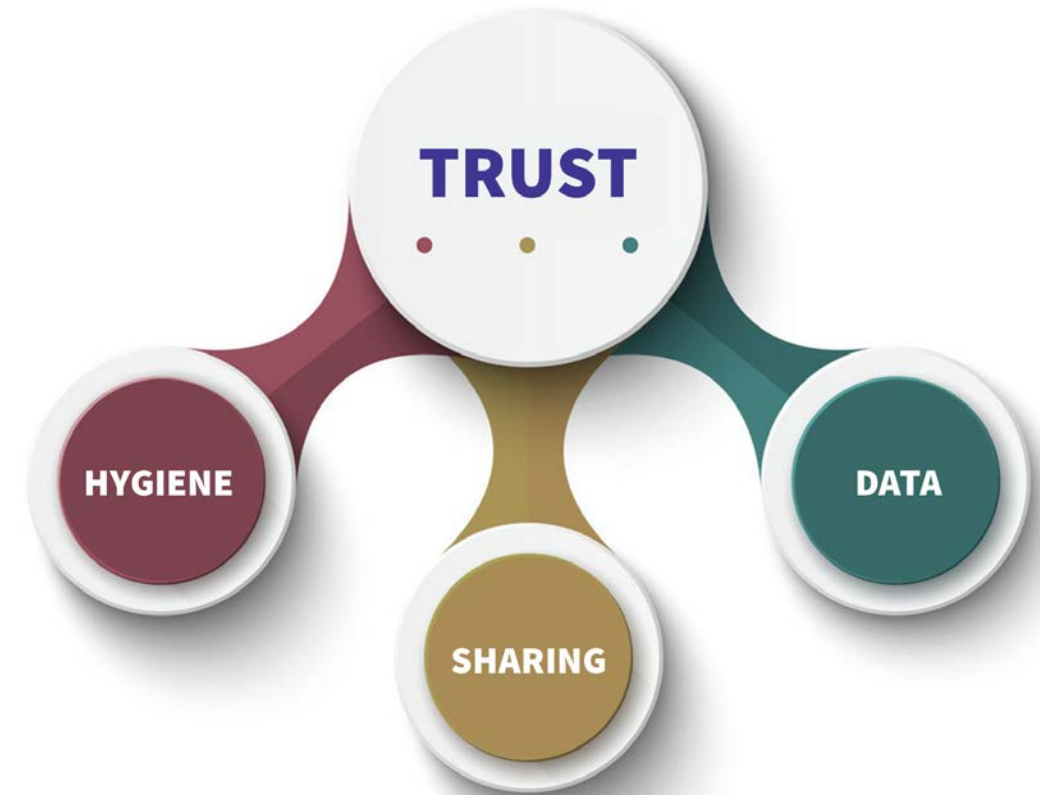# The Data Opportunity Under PSD2 for Payment Service Providers

EXECUTION
Manage the basics to minimize consumer friction

RELATIONSHIPS
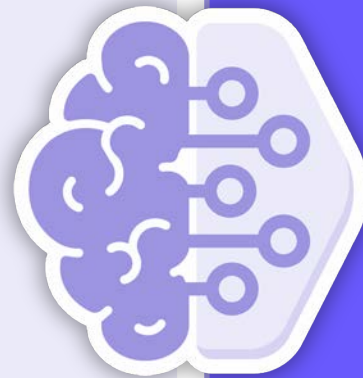Enable better data usage & sharing between merchants and issuers

CAPABILITIES
Utilize better data and better models

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Machine Learning & Data Cleaning

What is Machine Learning?

Artificial intelligence is the development of computer systems to perform tasks that normally require human intelligence

Machine Learning is type of AI where computers learn and identify patterns using the available data.

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Example for Data Normalization and Cleaning

Somebody.Someone+something@EXAMPLE.org

Local-part of the email address

- Can be case sensitive
- Support for domain specific sub-addressing
- Other domain specific rules

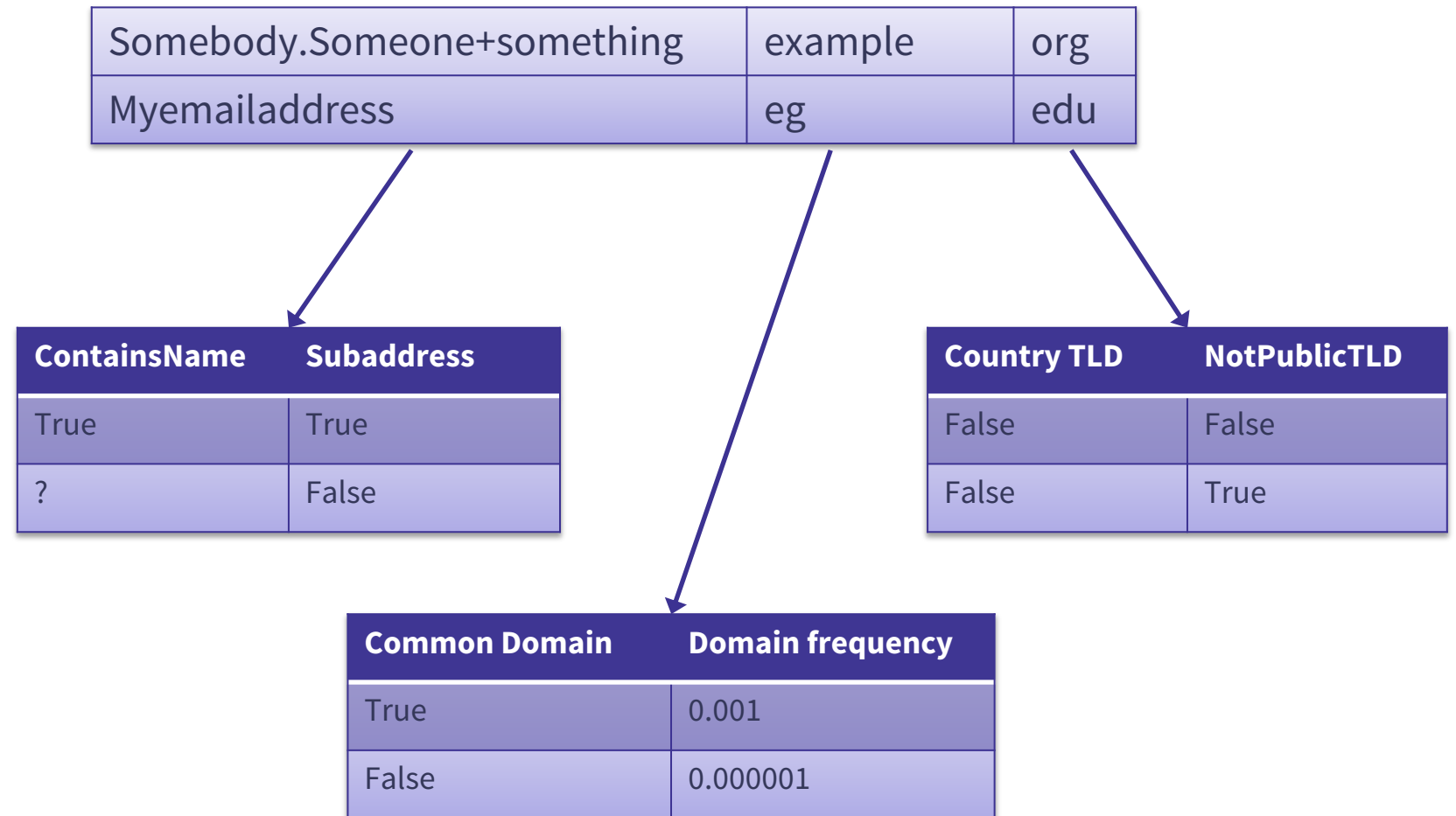**Registered domain**

- Case insensitive

Top-level domain (TLD)

- Fixed set
- Case insensitive

somebodysomeone@example.org

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Let's Say My Data is Cleaned…

1. Calculate Features

2. Train your model

3. Test and Validate

4. Repeat

Somebody.Someone+something	example	org
Myemailaddress	eg	edu

ContainsName	Subaddress
True	True
?	False

Country TLD	NotPublicTLD
False	False
False	True

Common Domain	Domain frequency
True	0.001
False	0.000001

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Common Challenges

False positives

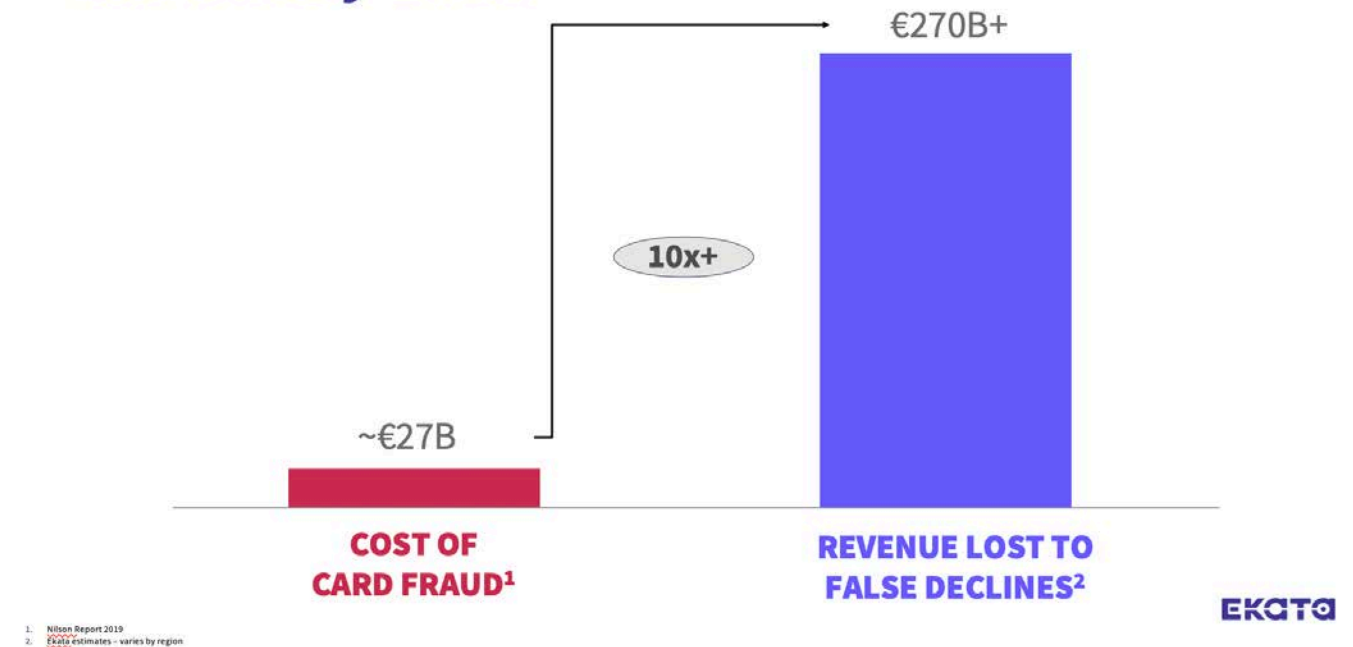Predicting fraud for non-fraud input

Privacy

Safe storage and processes around personal data

**Data cleaning and normalization**

Data coverage and size

Data needed for all regions/use cases

The Money Slide

€270B+

10x+

~€27B

COST OF CARD FRAUD[1]

REVENUE LOST TO FALSE DECLINES[2]

1. Nilson Report 2019
2. Ekata estimates – varies by region

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Governance and Ethics

- Explain your predictions
  - Black-box models
- Ethical decisions
  - Discrimination
- Hacking
  - E.g. Adversarial attacks

Input → Model → Output??
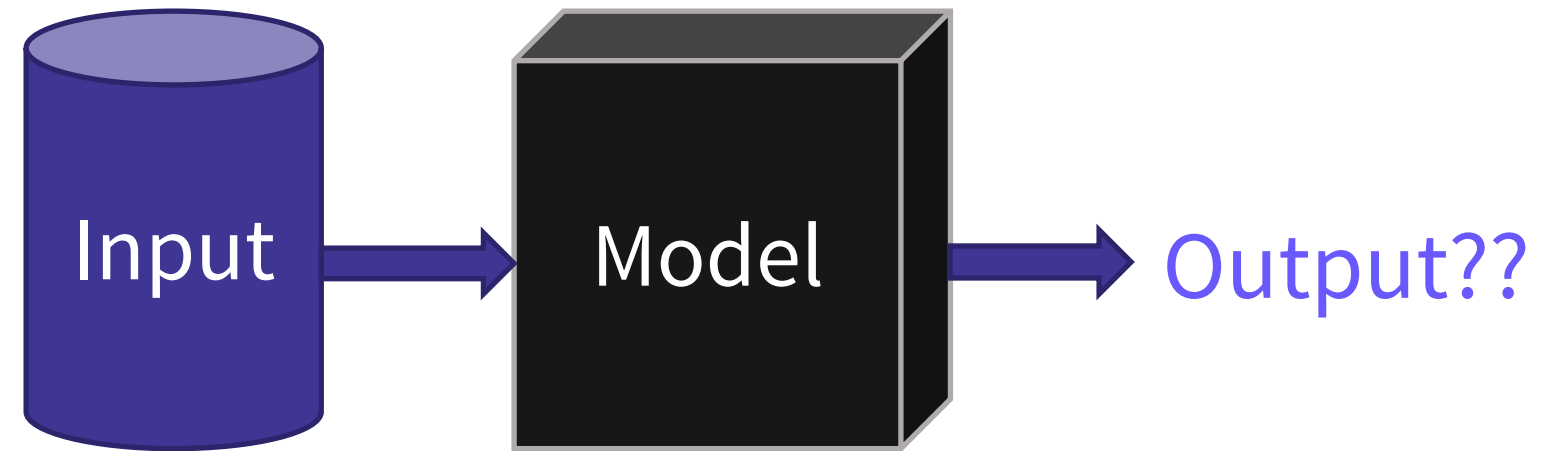
Key Takeaways

- Consumers place an extremely **high value on trust** when using companies' digital platforms

- The importance of keeping **data clean** for improving digital experiences

- Pay attention to **privacy** not exclusively for legal reasons

- **Avoid** building black-box models

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Interested in learning more?

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Questions?