VOICE BIOMETRICS IN CUSTOMER SERVICE A PROOF-OF-CONCEPT IN GERMANY

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VOICE BIOMETRICS IN CUSTOMER SERVICE

What do we expect from that?

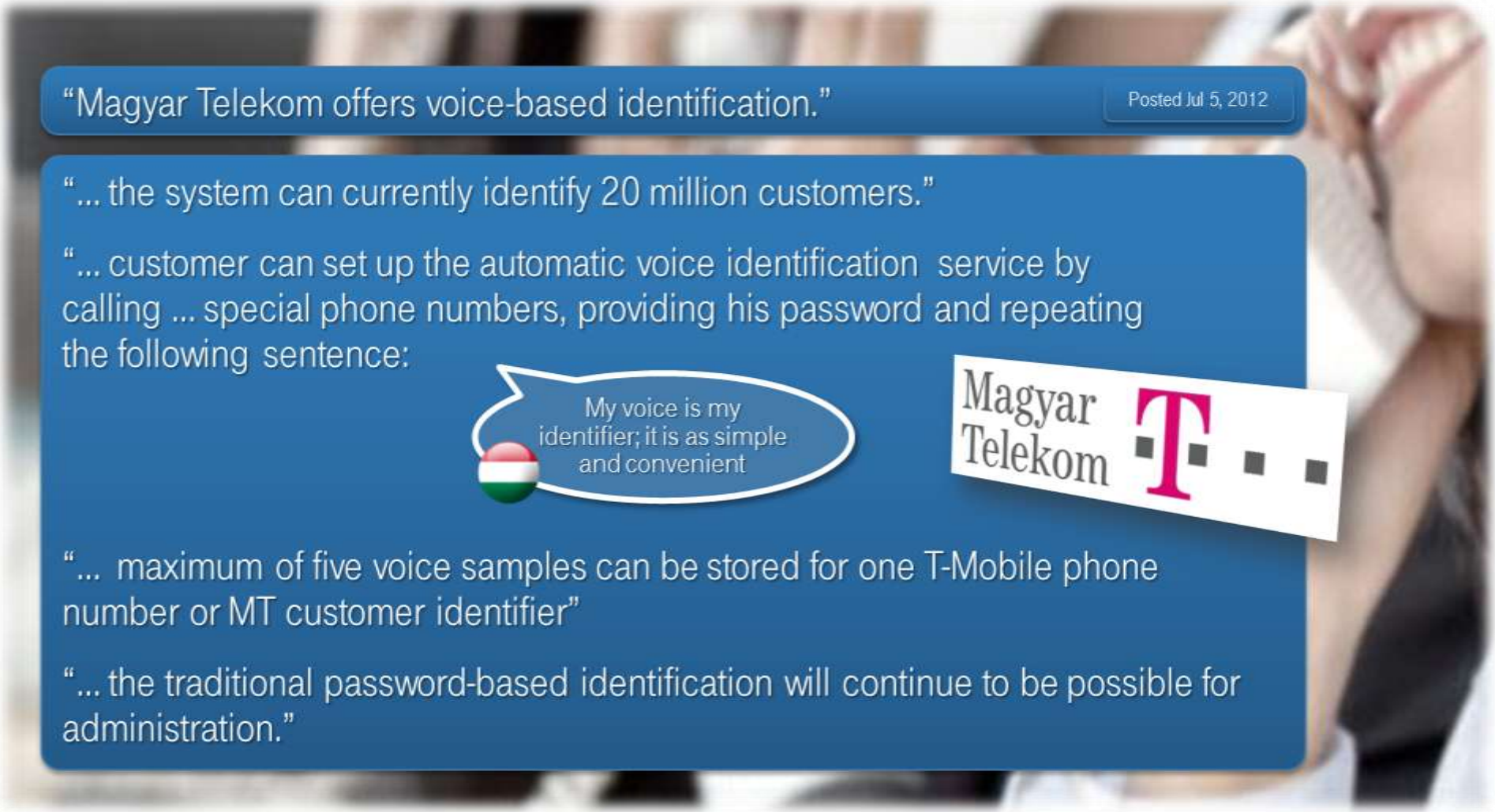
- Customer authentication often time-consuming and annoying
- Voice Biometrics promises more efficient procedure

- Should we use this in phone-based Customer Service?
  - Significant call handling time savings?
  - Possibility to secure service access?
  - Complies with German privacy legislation?
  - Easy to handle for customers?
  - Acceptance on a broad basis?

- Questions to be answered in a Proof-of-Concept:
  Getting an impression before going mainstream – in Germany.

VOICE BIOMETRICS IN CUSTOMER SERVICE

A first launch at Magyar Telekom



USER EXPERIENCE AND MATURITY LEVEL OF VB

Results expected from field trial in Germany

Potential of acceptance ...

- if voice authentication were introduced in Telekom customer service hotlines

450 (of 600) probands ...

- passed the trial (1 enrollment, 5 authentication calls)
- required to use voice authentication under pretense of a customer inquiry

Evaluation issues concern ...

- user experience resp. enrolling and authentification
- readyness of recommendation to other users
- advantages to authenticate via voice
- perceived security and privacy issues

VB TECHNOLOGY USED IN CALLER VERIFICATION

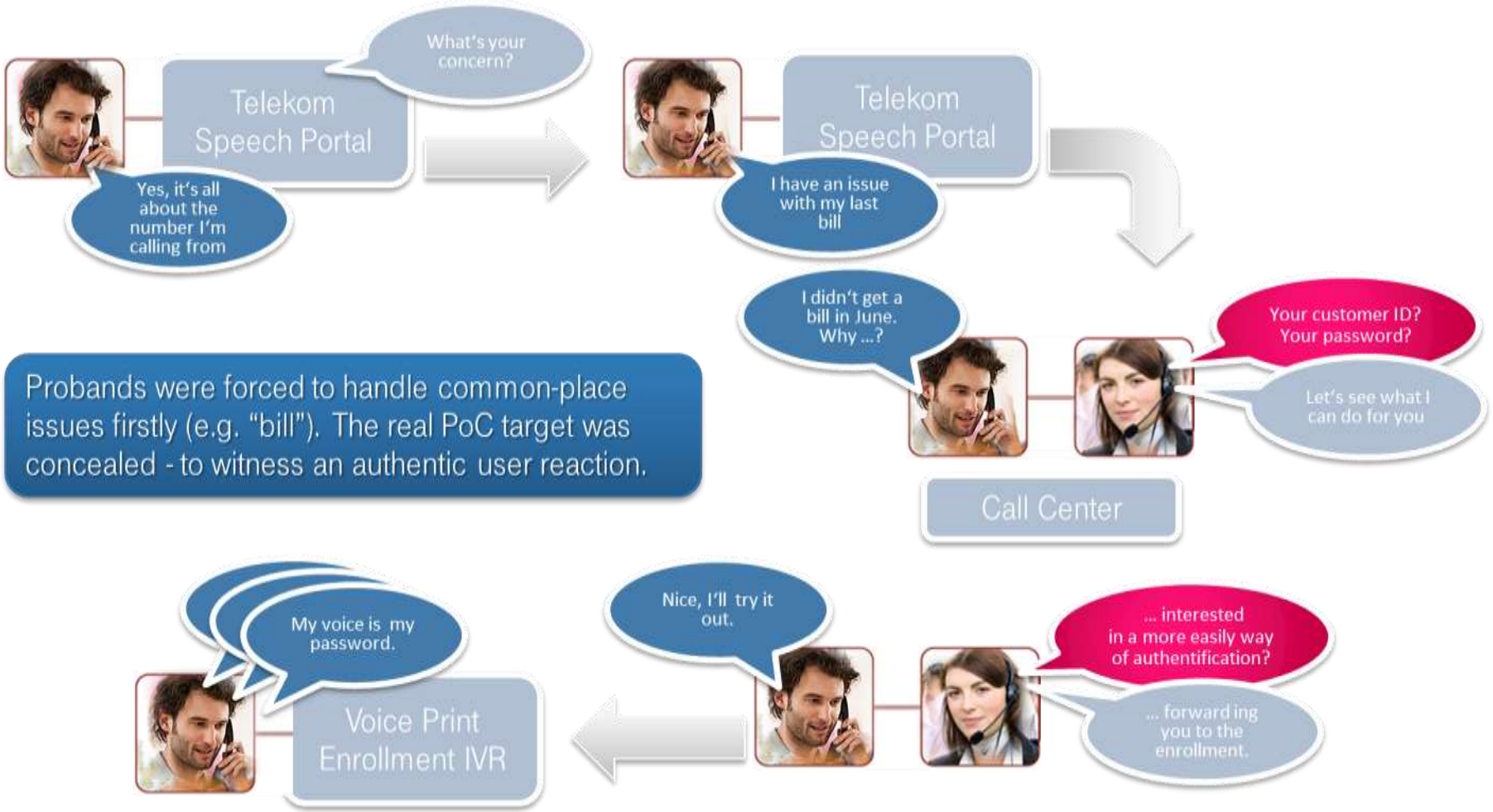
Authentication by verifying smb. claims to be

- Speaker verification means verifying claimed identity of a speaker based on the speech signal in comparison with “his” voiceprint.
- The speakers voice print has been generated in an enrollment process time before.

- Two types of SV
  - Text-dependent: requires the speaker to say exactly the enrolled or given phrase.
  - Text-independent: does not consider speech content while verifying the identity.
    - ⊕ More convenient because the user speaks freely to the system
    - ⊖ Requires more training utterances to get good performance

VB PROOF-OF-CONCEPT

Getting unaffected user experience: the approach to enroll

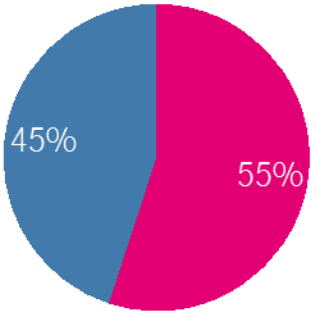


VB PROOF-OF-CONCEPT

Probands' screening for acceptance field trial

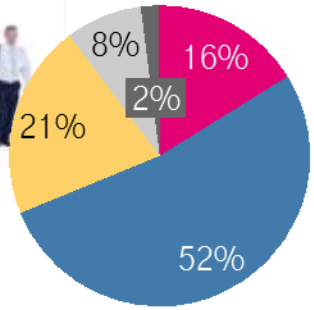
About 600 probands were acquired considering 10 pre-defined criteria, to meet the typical target group of Telekom customer service. Probands were explicitly not briefed in terms of voice authentication.

Sex



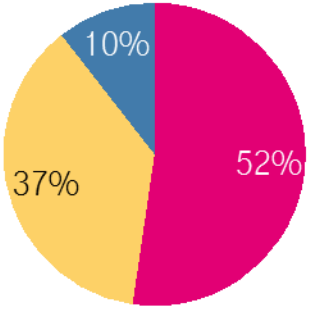
male
female

Age



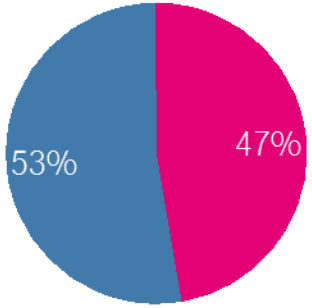
18-29 years
30-49 years
50-59 years
60-69 years
70+ years

Contractual relationship



Fixed line and Mobile: Telekom
Fixed line: Telekom – Mobile: others
Fixed line: others – Mobile: Telekom

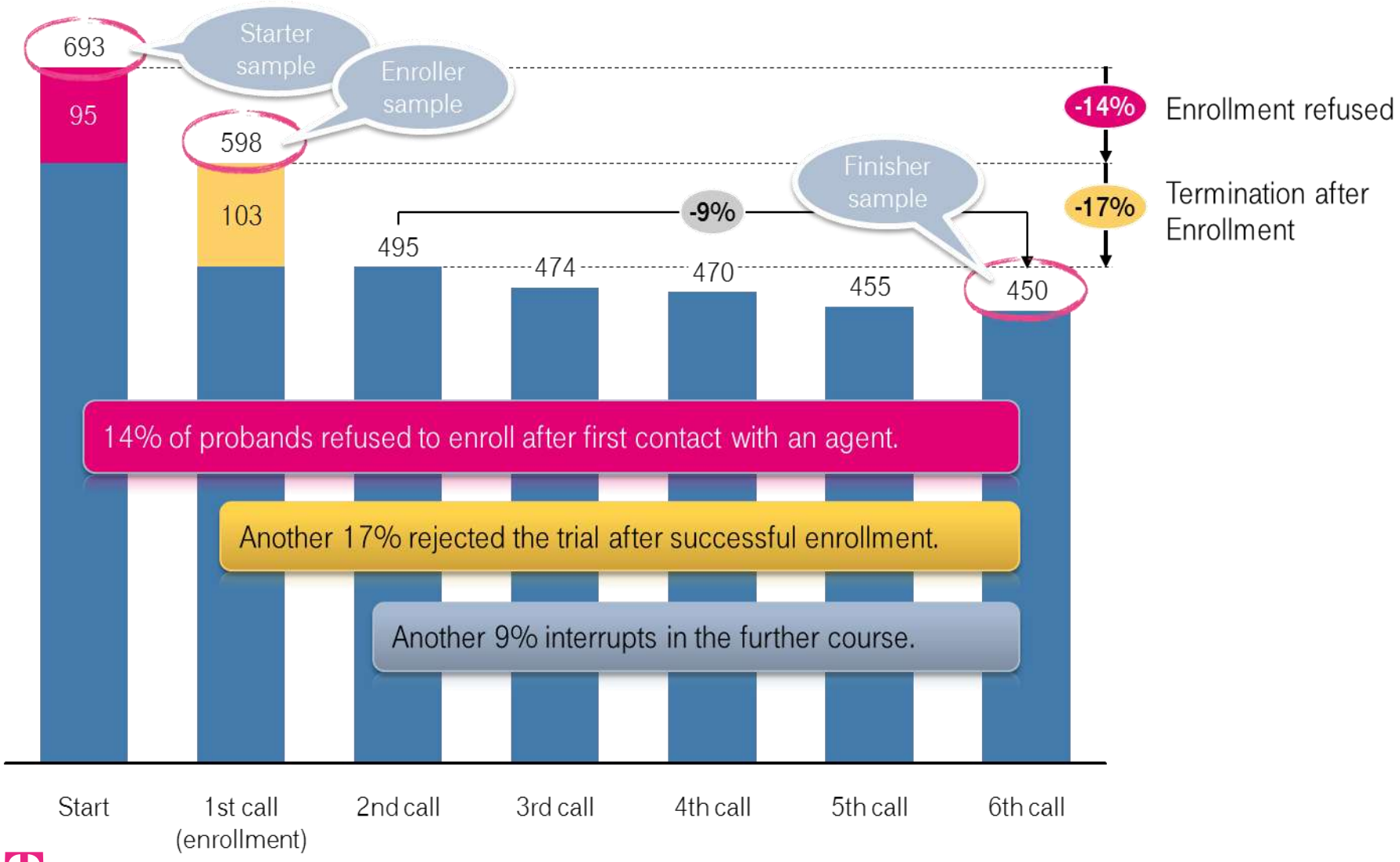
Contact to customer service



Last month
Last six month

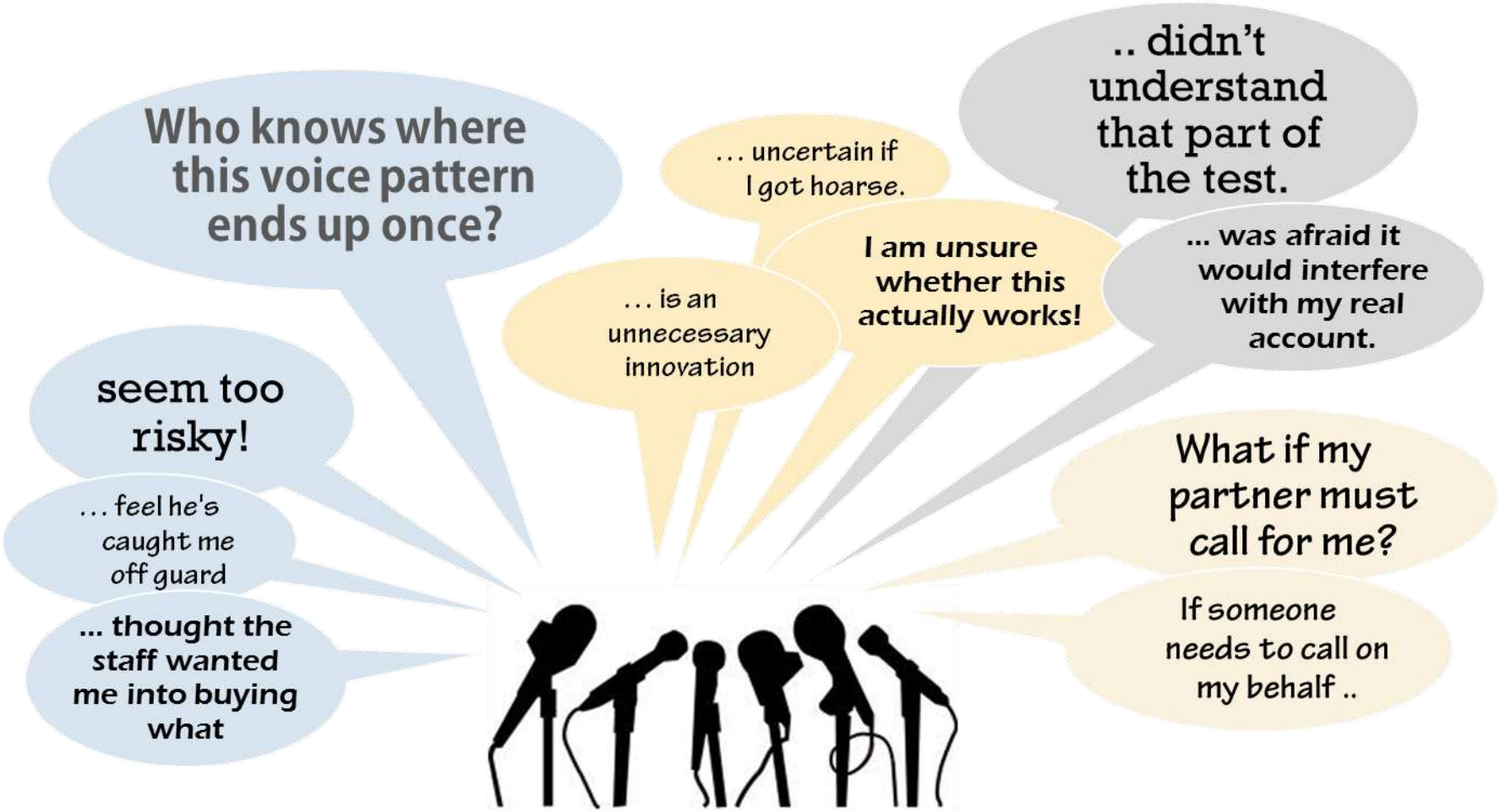
DEVELOPMENT OF PROBANDS' PARTICIPATION

Initial intake, enrollment and authentication calls



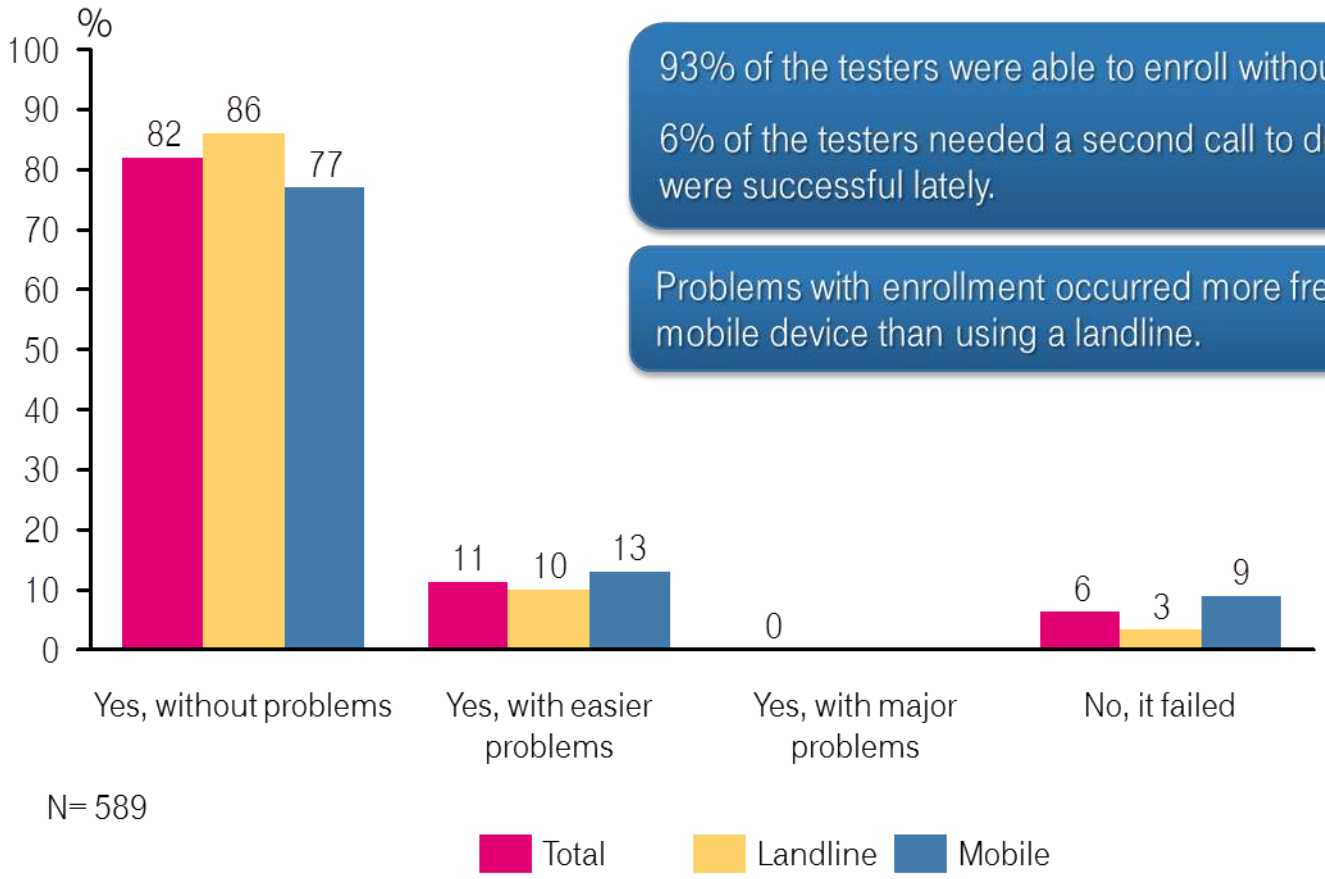
REASONS FOR REFUSING THE ENROLLMENT

Direct quotes after introducing the procedure by the agent.



SUCCESS RATE OF ENROLLMENT (PROBANDS' 1st CALL)

"Have you been able to successfully deposit your voice print already with the first call?"



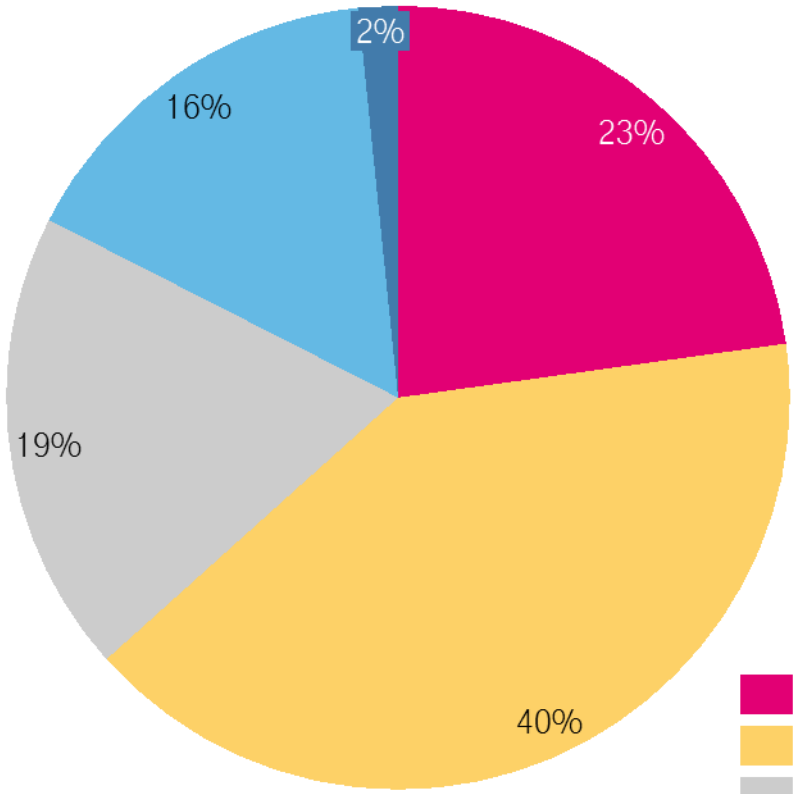
93% of the testers were able to enroll without or with minor problems.

6% of the testers needed a second call to deposit their voice print, but were successful lately.

Problems with enrollment occurred more frequently when using a mobile device than using a landline.

“IMAGINE, IF IT WERE REALITY AND NOT A TEST …”

“Would you still deposit your voice sample?”



N= 598

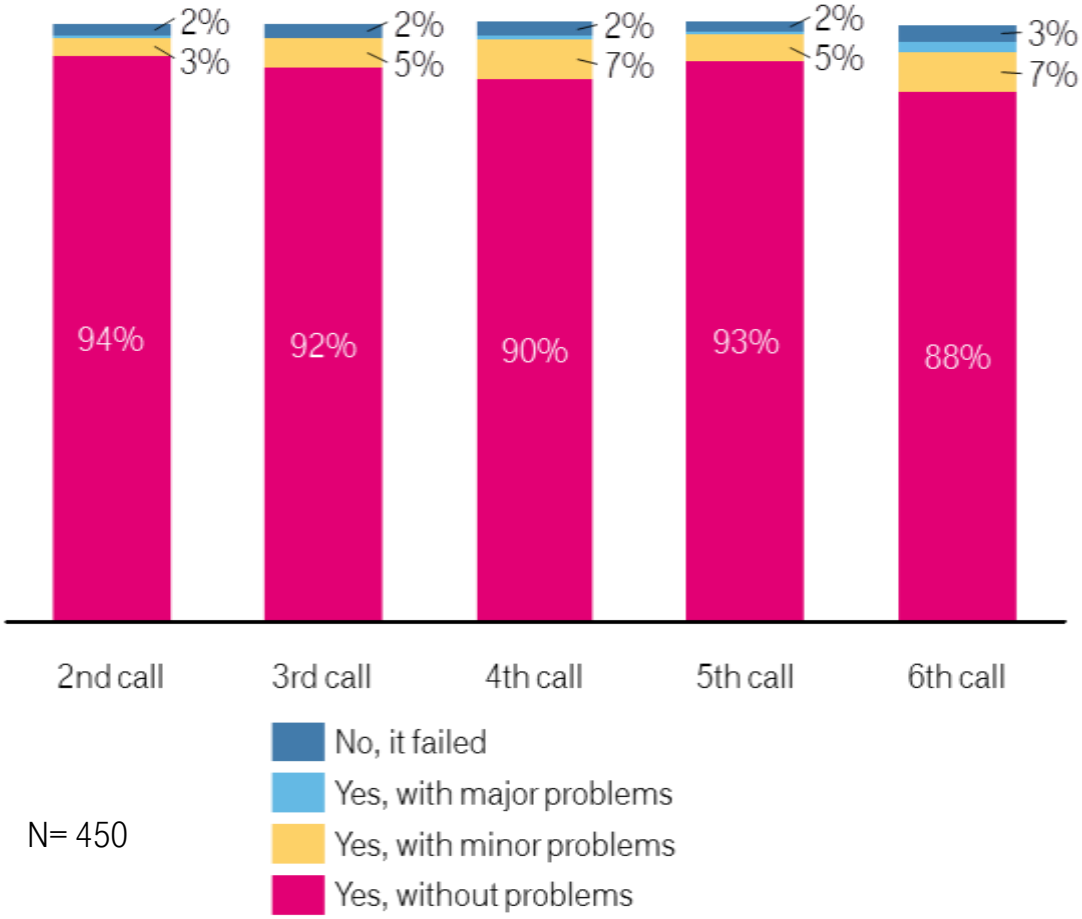
- Yes, in any case
- Yes, probably
- I don’t know
- No, probably not
- By now means

18% of customers indicate immediately after enrollment, that they had not filed their voice samples in a real system.

After completing the test, this percentage decreased significantly.

SUCCESS RATE OF AUTHENTICATION (CALLS 2-6)

"Have you been successfully identified on your voice?"



N= 450

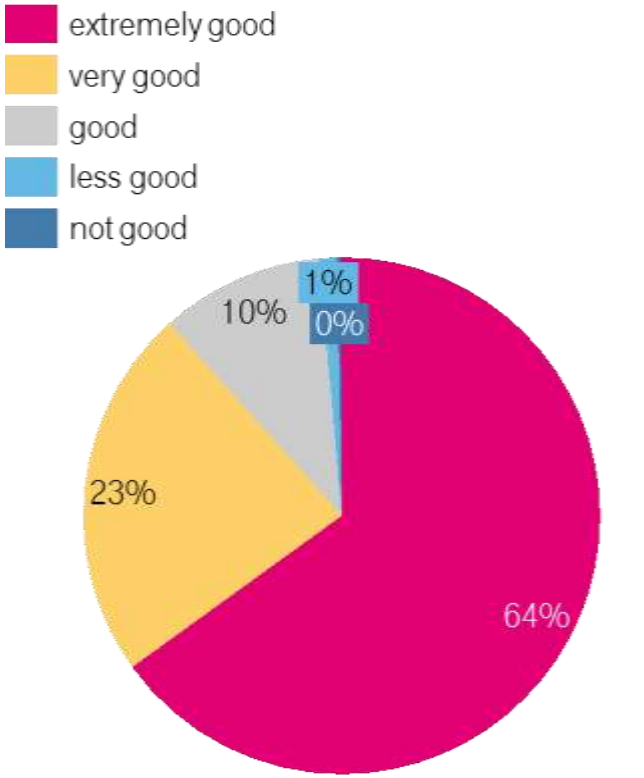
With an average of about 90% of the probands voice authentication voice works smoothly (only one utterance required).

In ca. 2% of the calls the proband can not be authenticated

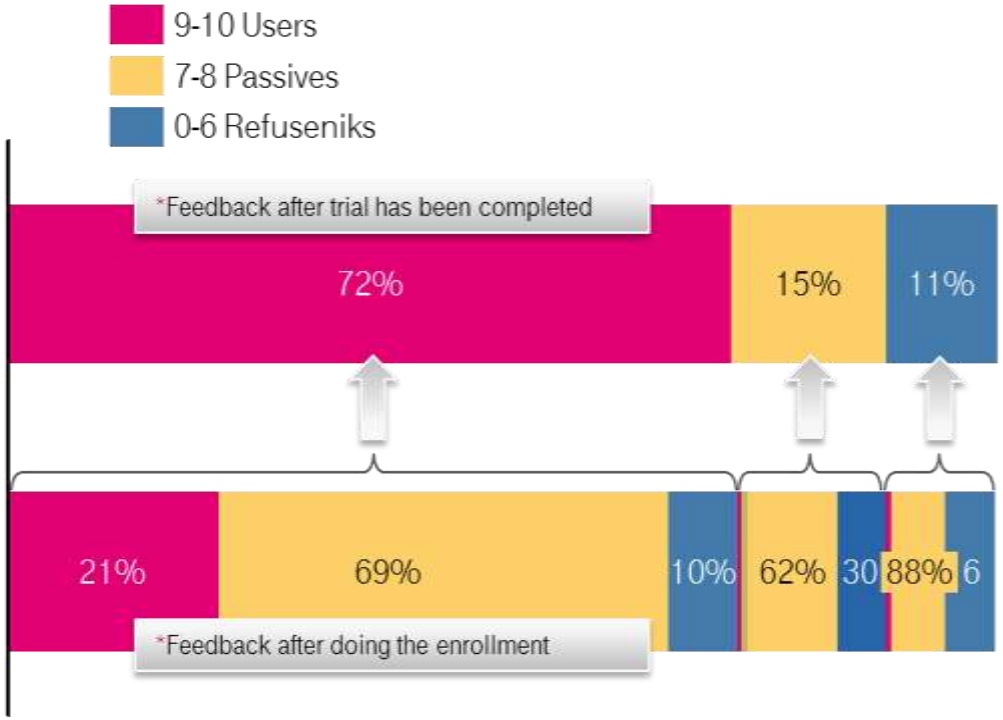
Unsuccessful authentications spread evenly across different probands.

TRIAL GIVES A PROOF OF GOOD USER ACCEPTANCE

The probands feedback respecting robustness and functionality ...

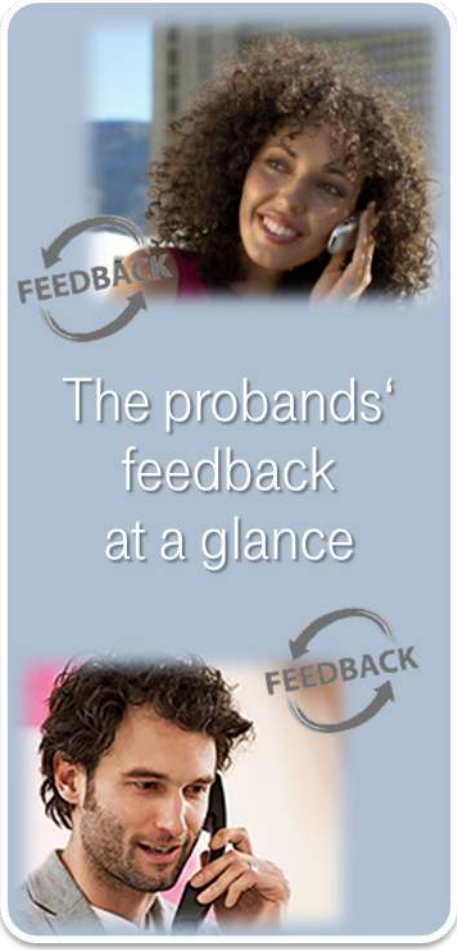


... as well as probability of use if technology were available (*Development of users' opinions)



HIGH SUCCESS RATE IN AUTHENTICATION

Little reservations concerning voice print storage



- High acceptance grade and readiness to recommend voice authentication in general
- High success rate regarding the enrollment as well as the authentication procedure
- Usage of enrollment and authentification perceived as simple and comfortable
- Main advantage seen in time savings while accessing customer services
- Security issues alone not sufficient to motivate voice authentication usage
- Small percentage with reservations concerning storage of voice prints at Deutsche Telekom

THANK YOU!

LIFE IS FOR SHARING.