The value estimation of a collaborative platform in a global project

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Introduction

❖ Tool allows you to manage complex conferences, workshops, and meetings.

    ❖ **Example for a collaborative tool in a global RI setup.**

    ❖ **Serves as a fact-based baseline for estimating the value of a future, similar service.**

❖ **Designed, implemented, maintained, and operated by CERN.**

❖ **Free and accessible to anyone** who wants to install it in their infrastructure.

❖ But **what is really the benefit of this infrastructure so popular among us?**

Quality benefits

❖ Easy organization of events including all the needs you may require: room reservation; program management; registration, e-payment, badge creation; submission of materials; surveys, etc.

❖ Enterprise content archiving system. One place to store all your events and easy to integrate in your working life.

Introduction

Quantitative benefits

❖ The above-mentioned benefits are entirely qualitative, but **what if they could be quantified?**

❖ This study has converted **these qualitative benefits into a quantifiable estimation** of the Socio-Economic Impact of a collaborative platform in a global project, **taking Indico as an example**, based on a **choice experiment method** conducted through a survey distributed in different countries.

Overview

- ❖ **Case study of Indico**

- ❖ **Approach to capture the value of the software:**

  - ❖ Choice experiment method

    - ❖ Common good value results

  - ❖ Economic model

    - ❖ Assumptions

    - ❖ Results

Survey to determine the common good value of Indico

❖ **2'100 valid respondents** from 5 different countries:
  ❖ **Italy, Spain, Germany, the United Kingdom** and **the United States of America**.
  ❖ In each country, **350 people were surveyed.**

❖ **Target audience → employees over 18 years** of age in **private sector companies** with more than **50 computers who are users** of the conference, workshop, and meeting management software.

❖ Survey serves as a representative source of information for Indico's target population.

❖ Quantification estimates were obtained in different currencies. The results were converted to euros.

Exchange rate November 11, 2022
1 $ → 0.97 €
1 £ → 1.14 €

Profile of the respondents

Gender and age
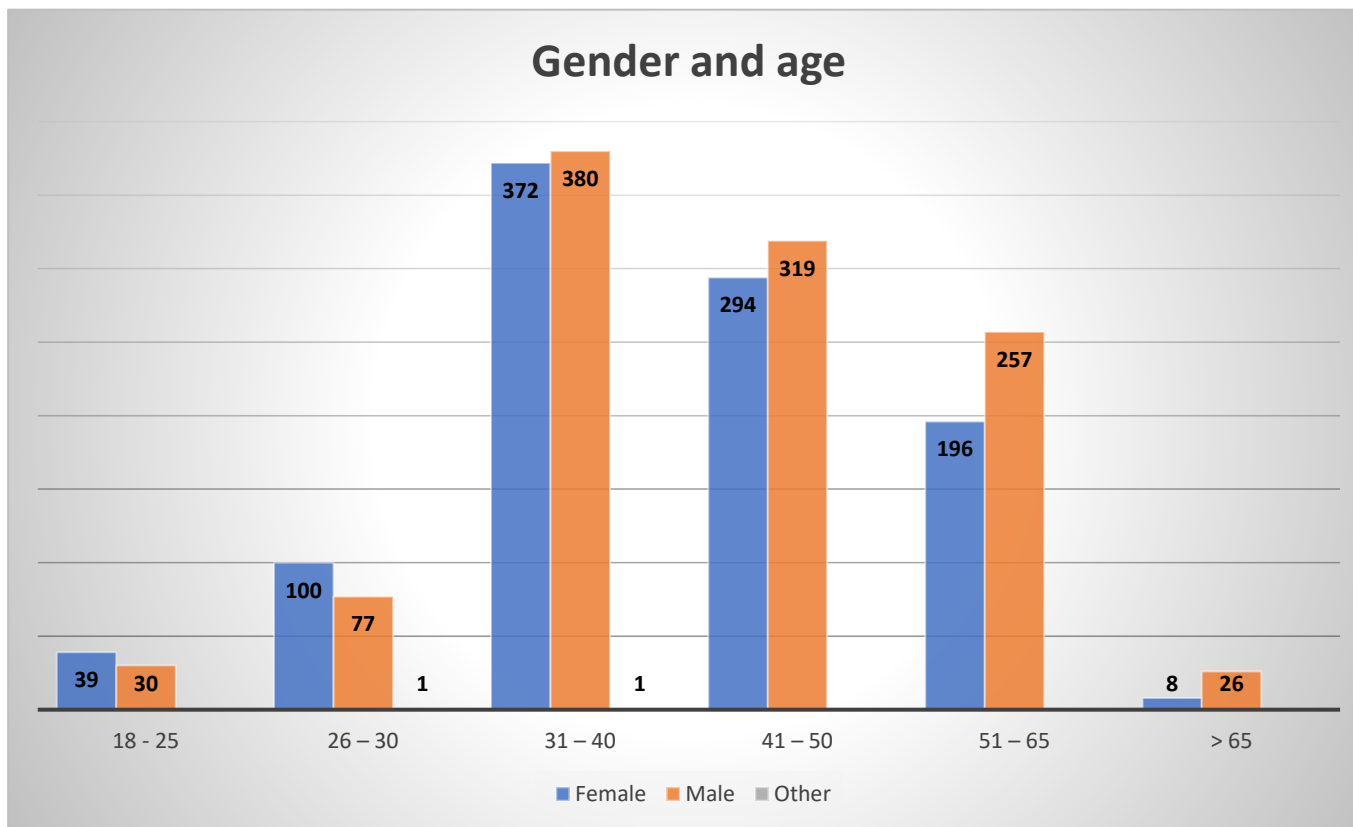
❖ 51,86 % men

❖ 48,04 % women

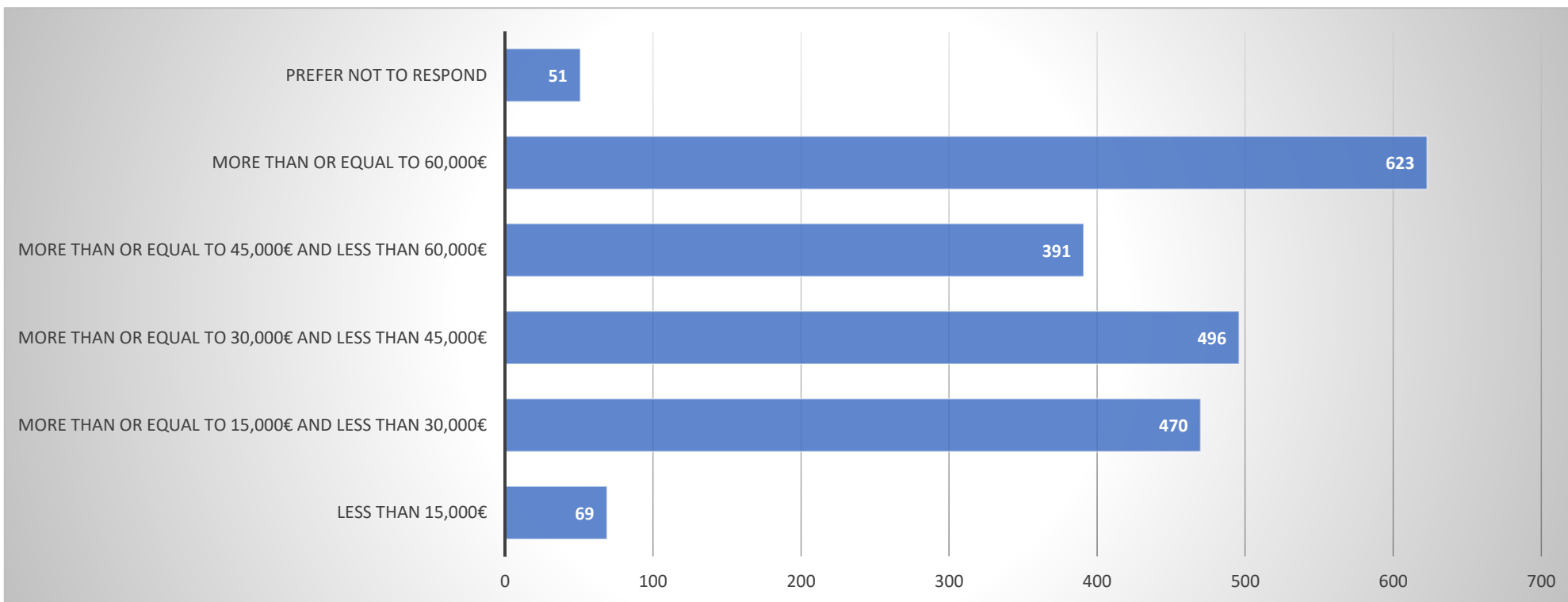| JOB TITLE BY COUNTRY	France	Germany	Italy	Spain	UK	USA
Administrative employee	3	80	110	105	82	72
Computer engineer	4	18	12	11	12	38
Consultant		15	13	8	6	2
Data analyst/statistician	13	8	1	5	8	8
Director	24	28	12	37	16	35
Engineer	135	35	22	23	7	13
Executive			1		1	
Freelance/I have my own company	20	4	7	2	9	8
Manager	8	31	33	22	140	132
Other, please specify:	1	3	1	5	5	2
Researcher (including student and post-doc)	1		5	3	6	4
Retired	25	2		1		
Teacher/professor	11	11	32	18	13	8
Technician/employee	15	113	98	108	45	28
Unemployed	90	2	3	2		

Respondents who provided different job titles are mostly from the medical field.

Highest education level of respondents by gender
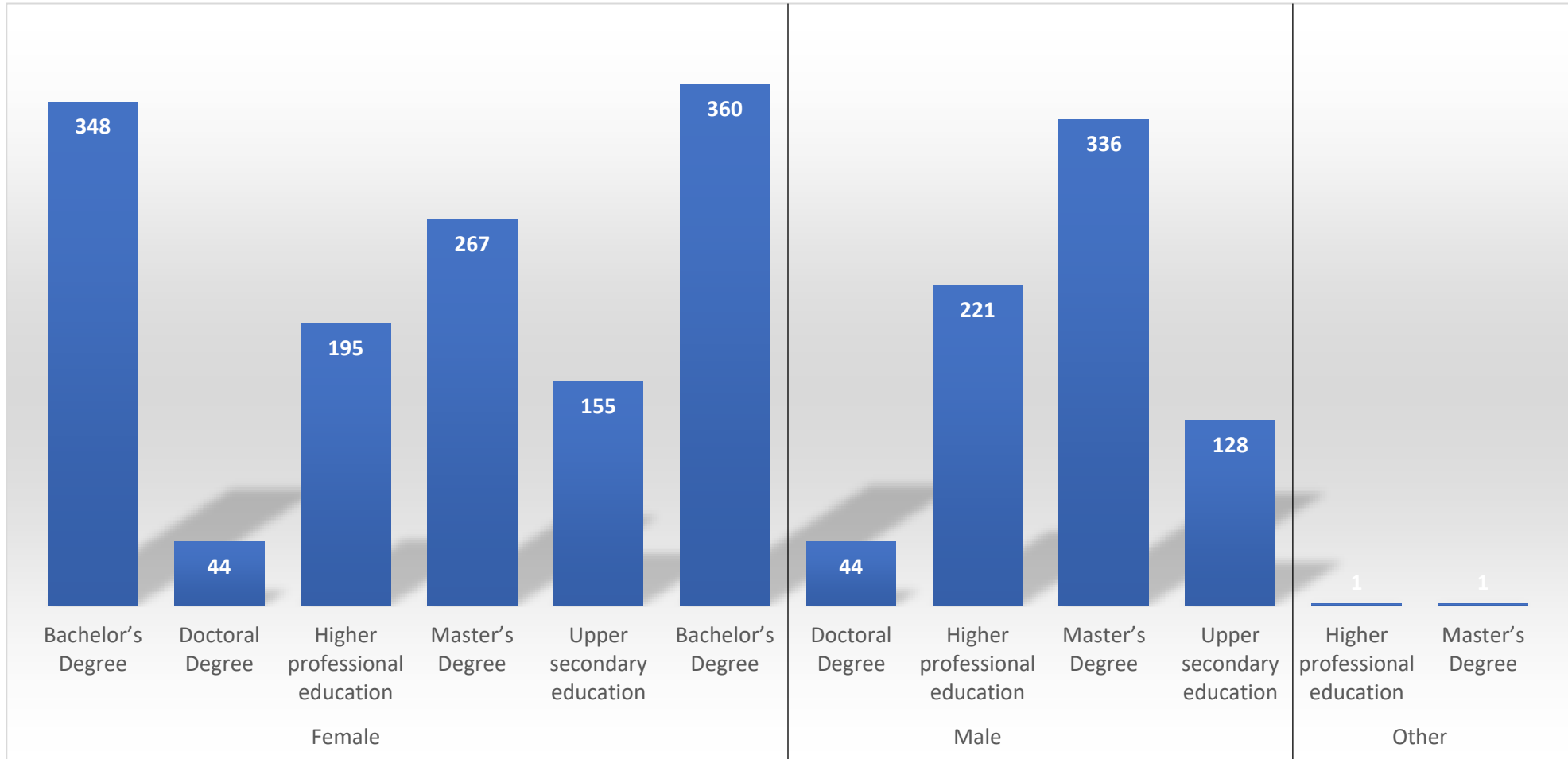
Annual gross income of respondents

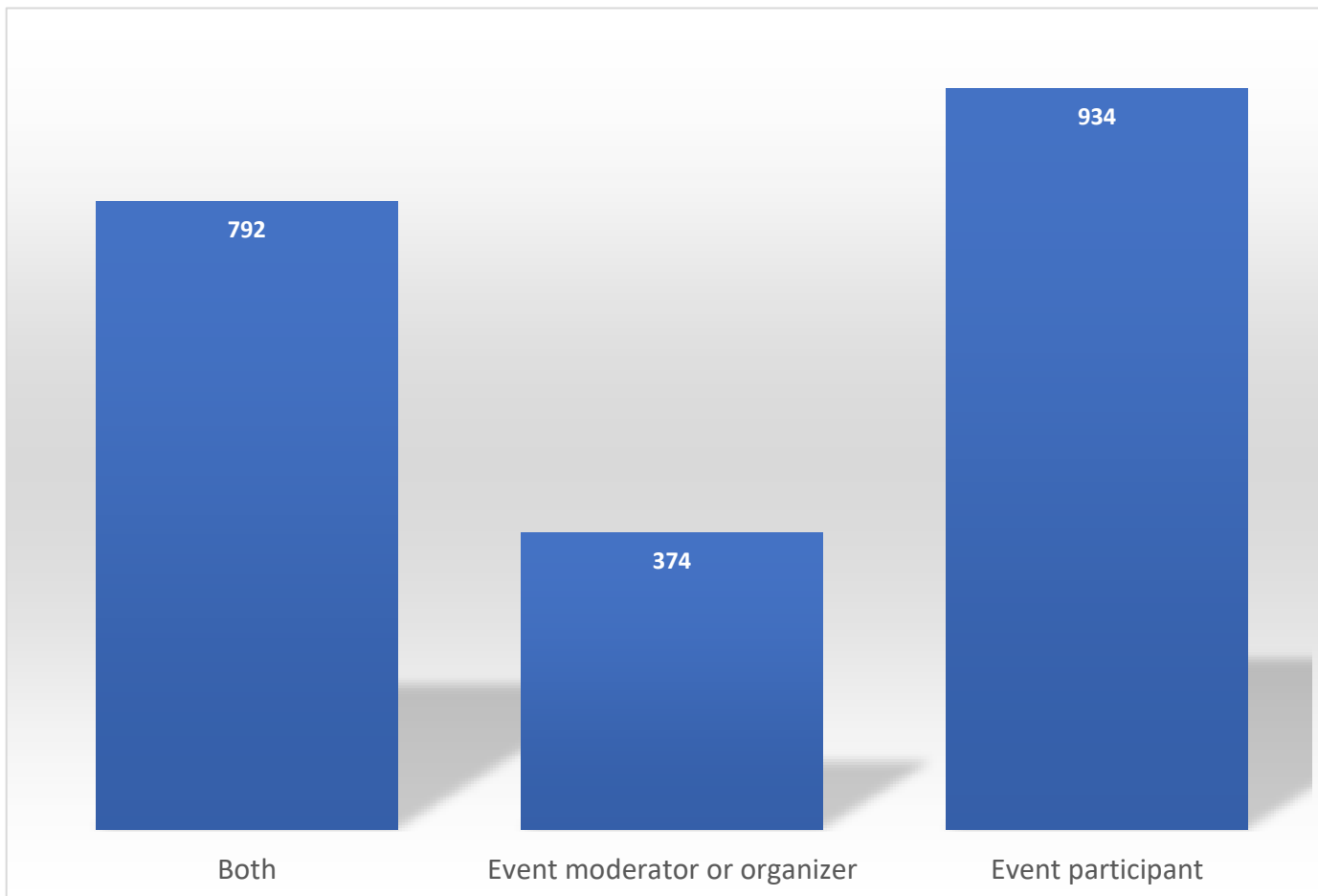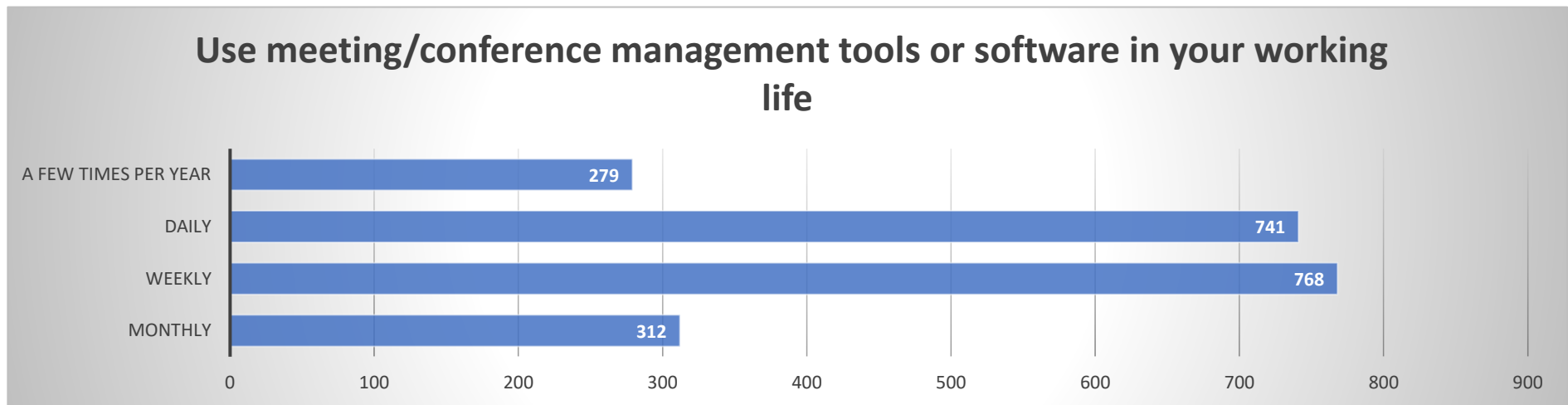| Income category	Count
PREFER NOT TO RESPOND	51
MORE THAN OR EQUAL TO 60,000€	623
MORE THAN OR EQUAL TO 45,000€ AND LESS THAN 60,000€	391
MORE THAN OR EQUAL TO 30,000€ AND LESS THAN 45,000€	496
MORE THAN OR EQUAL TO 15,000€ AND LESS THAN 30,000€	470
LESS THAN 15,000€	69

The highest concentration of respondents falls in the salary above 45'000 € per year.

User profiles

About meeting/conference management tools/software
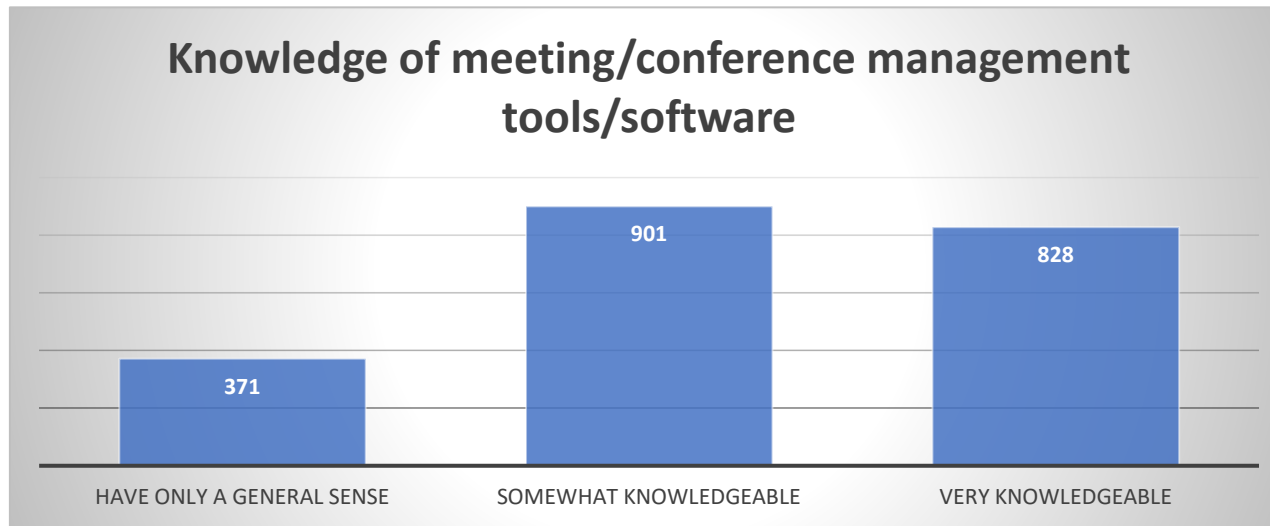
Knowledge of meeting/conference management tools/software

Category	Value
HAVE ONLY A GENERAL SENSE	371
SOMEWHAT KNOWLEDGEABLE	901
VERY KNOWLEDGEABLE	828

Use meeting/conference management tools or software in your working life

Category	Value
A FEW TIMES PER YEAR	279
DAILY	741
WEEKLY	768
MONTHLY	312

Estimation of the common good value of Indico

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Estimation of the common good value of Indico

Two types of questions were asked in relation to the Willingness To Pay (WTP) as a proxy for the common good value, after showing a presentation on the Indico tool, explaining its features and how it works:

What price would you be willing to pay for Indico to manage <u>one single event</u>?

Category	Value
1 € - 50 €	132
51 €- 150 €	208
151 € - 250 €	288
251 € - 500 €	438
501 € - 750 €	408
751 € - 900 €	212
> 900 €	117
I WOULD NOT BE WILLING TO PAY ANYTHING.	297
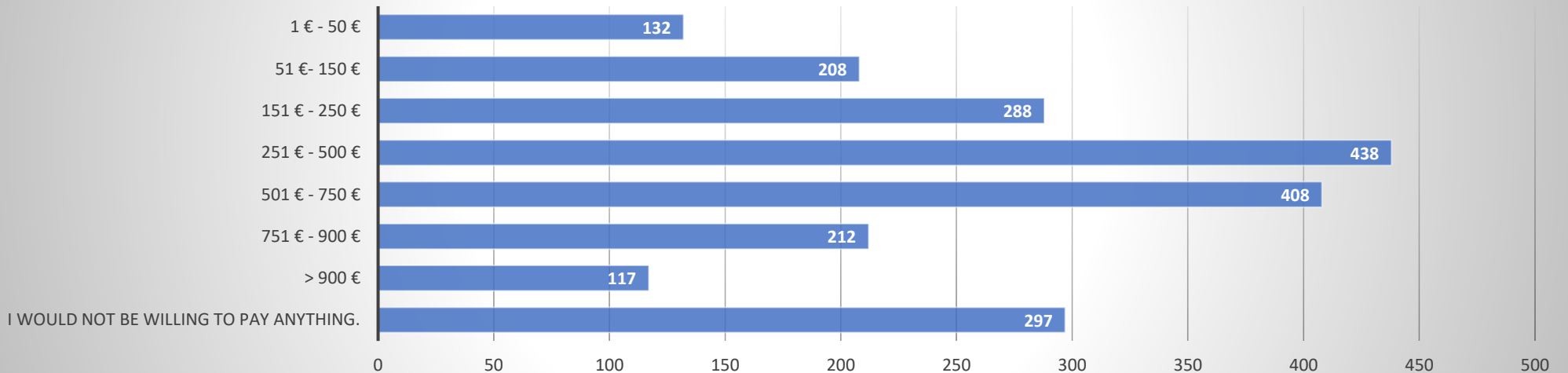
❖ When respondents were asked to justify their response, most were that **keeping events and documents safe is a fair price.**

❖ This response is repeated in several different ways throughout the study.

Response value ranges	Rationale for the answer
51 € - 150 €	▪ Good service.
151€ - 250 €	▪ I like that it is organized and professional.
251 € - 500 €	▪ The platform is very good. ▪ I like high-quality services like this. ▪ Because it helps me at work.
501 € - 750 €	▪ Very good platform.
751 € - 900 €	▪ Effort matters. ▪ Because it is elite.
> 900 €	▪ High-quality platform. ▪ According to the description, it is a full options service with very excellent features, therefore I choose this price range.

Regression model

```
Coefficients:
                         Estimate   Std. Error t value Pr(>|t|)
(Intercept)            399.7496526  32.9159997  12.145  < 2e-16 ***
ValueUser               77.7775385  14.4968565   5.365 8.98e-08 ***
ValueSalary              0.0032059   0.0002921  10.977  < 2e-16 ***
Educ                   -15.4176452  14.8222870  -1.040    0.298
ValueGender            -19.0559329  13.5783103  -1.403    0.161
A.3...How.old.are.you.  -4.5484464   0.6488828  -7.010 3.21e-12 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

❖ The model shows how the choice decision of Willingness to Pay is influenced by the variables **age**, **salary**, and whether the **user is a moderator/creator of events** and a **participant**.

❖ Variables that do not influence the prize range choice are not taken into account.

❖ The regression model reports a **Willingness To Pay per single event of 405.53 €**.

Choice experiment method

❖ A **choice experiment** is a survey approach designed to elicit consumer preferences based on hypothetical markets.

❖ The choice experiment has been formulated as follows:

  ▪ Respondents were informed that the Indico tool has some basic features, which are: names of speakers and participants with their contact details, material to be used at the event, detailed agenda with time indications, links to videoconferences, invitations to speakers and participants, and management of access to the event.

  ▪ The attributes respondents were asked about in the choice were as follows:
    ➢ **Price per event:** (A) 250 €, (B) 475 €, (C) 750 €
    ➢ **Registration form and room reservation**
    ➢ **Abstract submissions and publications review**
    ➢ **Customizing the event page**

  ▪ 6 different sets of questions were created with four options each. Three options where the existence or non-existence of the three attributes were mixed according to the price attribute and a fourth option in case the respondent did not agree with the three previous options.

Conditional Logistic Regression model - Results

❖ **Conditional logistic regression** is an extension of logistic regression that allows one to consider stratification and matching. Its main field of application is observational studies and in particular epidemiology.

```
clogit(Choice.binary ~ Bid + Abstract + RegPayForm.and.Book +
    Cust.event.page + strata(Respondent), method = "exact", data = data)

                           coef   exp(coef)   se(coef)       z       p
Bid                  -2.385e-03   9.976e-01   5.464e-05  -43.64  <2e-16
Abstract              7.331e-01   2.081e+00   2.481e-02   29.54  <2e-16
RegPayForm.and.Book   8.624e-01   2.369e+00   2.347e-02   36.75  <2e-16
Cust.event.page       4.999e-01   1.649e+00   2.467e-02   20.26  <2e-16

Likelihood ratio test=3942   on 4 df, p=< 2.2e-16
n= 50400, number of events= 12600
```

❖ The results show that **all variables are significant and therefore important in the choice**.

❖ The price coefficient is negative, as expected, for the calculation of the **"marginal Willingness to Pay" (MWTP)**. The price should be negative to reflect the trade-off between the price and the positively valued attribute. A positive price coefficient will give a negative MWTP.

Results

MWTP

Abstract submissions and publications review	307.38
Registration form and room reservation	361.59
Customizing the event page	209.60
Average WTP	**292.86**

❖ The results reflect that:

- Respondents are willing to pay **additional 307 € to add the feature "Abstract and publications review"** to their events.

- The feature they would be least willing to pay for is **"Customizing the event page"**, and the feature they would be most willing to pay for is **"Registration form and room reservation".**

- Respondents would be willing to pay **additional 293 € for each individual feature added to the basic event**

Considerations and conclusions

❖ We consider that, with the exception of the United Nations using the tool in 90 % of the cases for conferences, **Indico is mostly used for lecture or meeting type events**.

❖ Eliminating the category of "Abstract submission and publication review", which is more commonly used at conferences, the **WTP reported** by the survey is **571.19 € per event**.

Quantified Indico Socio-Economic Impact potentials

Research centers

- ❖ The **following table shows the research organizations and infrastructures** considered in the study.

- ❖ An effort has been made to **exclude organizations that largely overlap with the LHC particle physics science community** by capturing communities beyond the core users.

Year	WWU Münster	SISSA	SKAO	Maths CNRS	EGO	United Nations	ESA	UU	CTA	STFC	RIKEN	FUSENET	EGI	INAF	IHEP	Sum events per year
2006															21	21
2007															135	135
2008											59				286	345
2009											75				379	454
2010			27						19		206		211		388	851
2011			43						65		268		442		519	1,337
2012			11					7	121		310		415		493	1,357
2013			27	241			11	53	192		345		540		410	1,819
2014			33	280			17	78	235		338		384	31	672	2,068
2015		2	31	264		1,973	32	86	204		359		348	125	679	4,103
2016		2	50	673		3,910	36	89	221		261		335	145	925	6,647
2017		11	35	869		4,354	38	123	372		218		333	69	844	7,266
2018		7	30	855	7	4,636	36	105	392	17	252		603	127	1,268	8,335
2019	30	7	54	924	28	5,083	44	113	376	81	306	1	571	194	1,652	9,464
2020	144	10	53	731	58	2,486	29	122	541	104	289	4	485	315	1,899	7,270
2021	517	4	48	744	154	1,807	31	152	596	186	343	10	324	459	2,325	7,700
2022	571	13	53	1,289	170	3,270	34	232	683	196	331	8	245	420	2,431	9,946

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Quantified Indico Socio-Economic Impact potentials

❖ **Values have been calculated using the following assumptions:**

    ❖ The **increase of events in the time period 2028 - 2040** is assumed to be 20 % per year, considering 2014 – 2022 as a reference period.

    ❖ The **increase of events in the time period 2041 - 2057** is assumed to be 5 % per year, considering that the platform's user community will eventually stabilize.

TOTAL QUANTIFIED SOCIO-ECONOMIC IMPACT POTENTIAL	
DISCOUNTED VALUE	NON – DISCOUNTED VALUE
3.1 billion CHF for a time period of 29 years	**5.3 billion CHF for a time period of 29 years**

THANK YOU