The Boston Consulting Group Hacker Survey

Release 0.73

AGENDA

Overview of key findings

Who and why?

- Who is BCG?
- Why the Interest in the Free/Open Source Software community?
- What is SourceForge.net?

The study

- Methodology
- Data & findings

Questions and implications

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OVERVIEW OF KEY FINDINGS

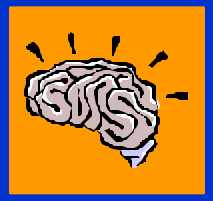
Why should we care?

High creativity

What motivates hackers?

?

Fun, skill, freedom and need



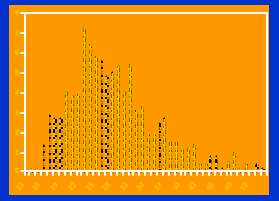
Increasing knowledge biggest benefit

Losing sleep biggest cost

Who are these guys?

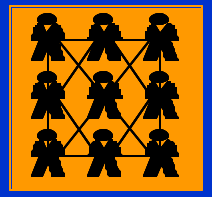
Volunteer significant time

IT professionals



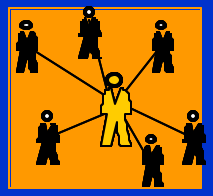
Generation Xers

What about the community?



Strong identification

Global effort



Peer leadership preferred

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WHO IS THE BOSTON CONSULTING GROUP?

A leading global management consulting firm operating since 1963

- Advising senior management at the world's largest companies across most industries
- Focusing on the most important actions they should take to create sustainable competitive advantage, i.e., strategy
- "Insights with impact"

Over 2,800 consultants in 53 offices around the world

We don't

- Sell data from surveys
- Do programming
- Audit client financials

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BCG'S INTEREST IN FREE/OPEN SOURCE COMMUNITY

F/OS software is disrupting existing patterns of competition in the software industry

Large companies are using investments in F/OS software and the community as strategic thrusts against their competition

The community may have lessons for innovation, organizational design, and leadership extending far beyond software

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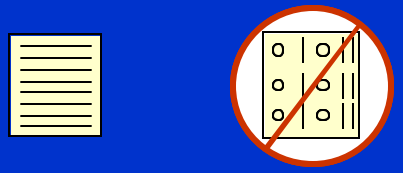
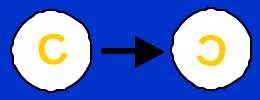
OPEN SOURCE PRINCIPLES

Intellectual property



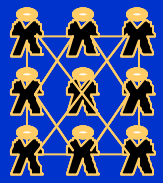
Code should always be open -
"Free speech, not free beer"

"Copyleft"

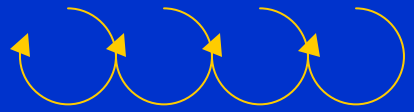


"Use copyright to ensure copyleft"

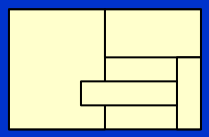
Development paradigm



Extensive involvement of user/developer community



"Release early, release often"

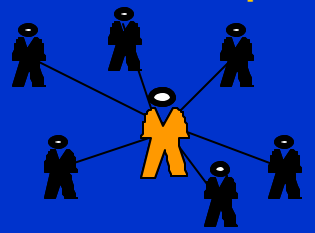


Modularize code

Resource model

Good ideas come from solving a problem or scratching an itch

"The three obligations: to give, to receive, to reciprocate"



Peer leadership -
vision, engagement, code

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WHAT IS SOURCEFORGE.NET?

Produced by Open Source Developer Network (OSDN)

Largest repository of Open Source code and applications available

Provides free services to Open Source developers

- **Project hosting, version control, bug and issue tracking, mailing lists, email archives, project management , and collaboration resources**

Over 450,000 registered users

- **700 new registered users a day**

Over 43,000 hosted projects

- **60 new Open Source projects a day**

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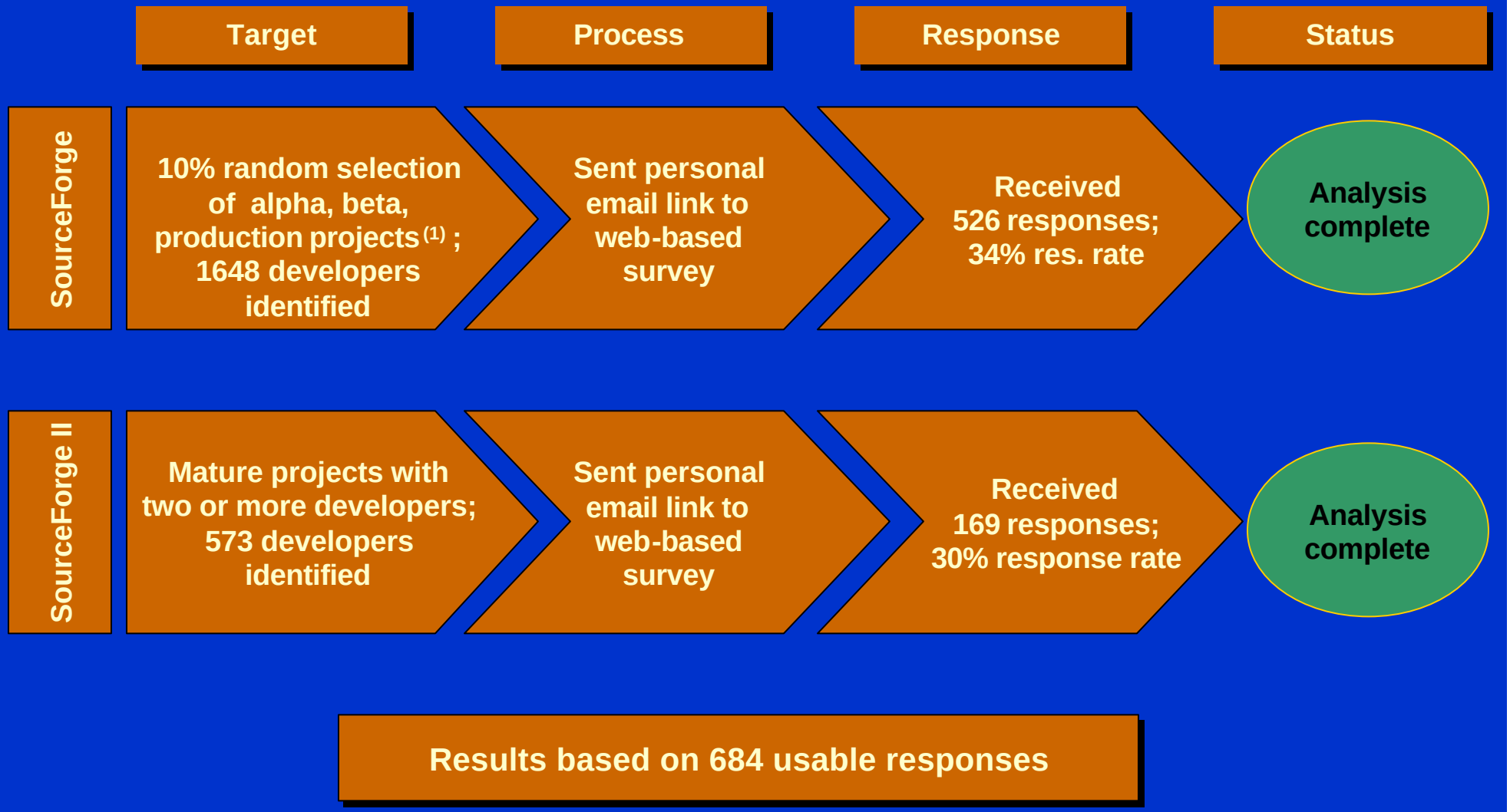
SURVEY METHODOLOGY



Results based on 684 usable responses

(1) Projects had 50% or greater activity level

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F/OSS PROJECTS AND PROGRAMMING TURNS ON HACKERS

61.7% "This project is as (or most) creative as anything I have done"

48.4% "Like composing poetry or music"

72.6% "When I program, I lose track of time"

60.0 % "With one more hour in the day, I would spend it programming"

Note: "...like composing poetry..." answer chosen as one of top three attitudes by participants; other answers based on degree of participant agreement with statement

Details

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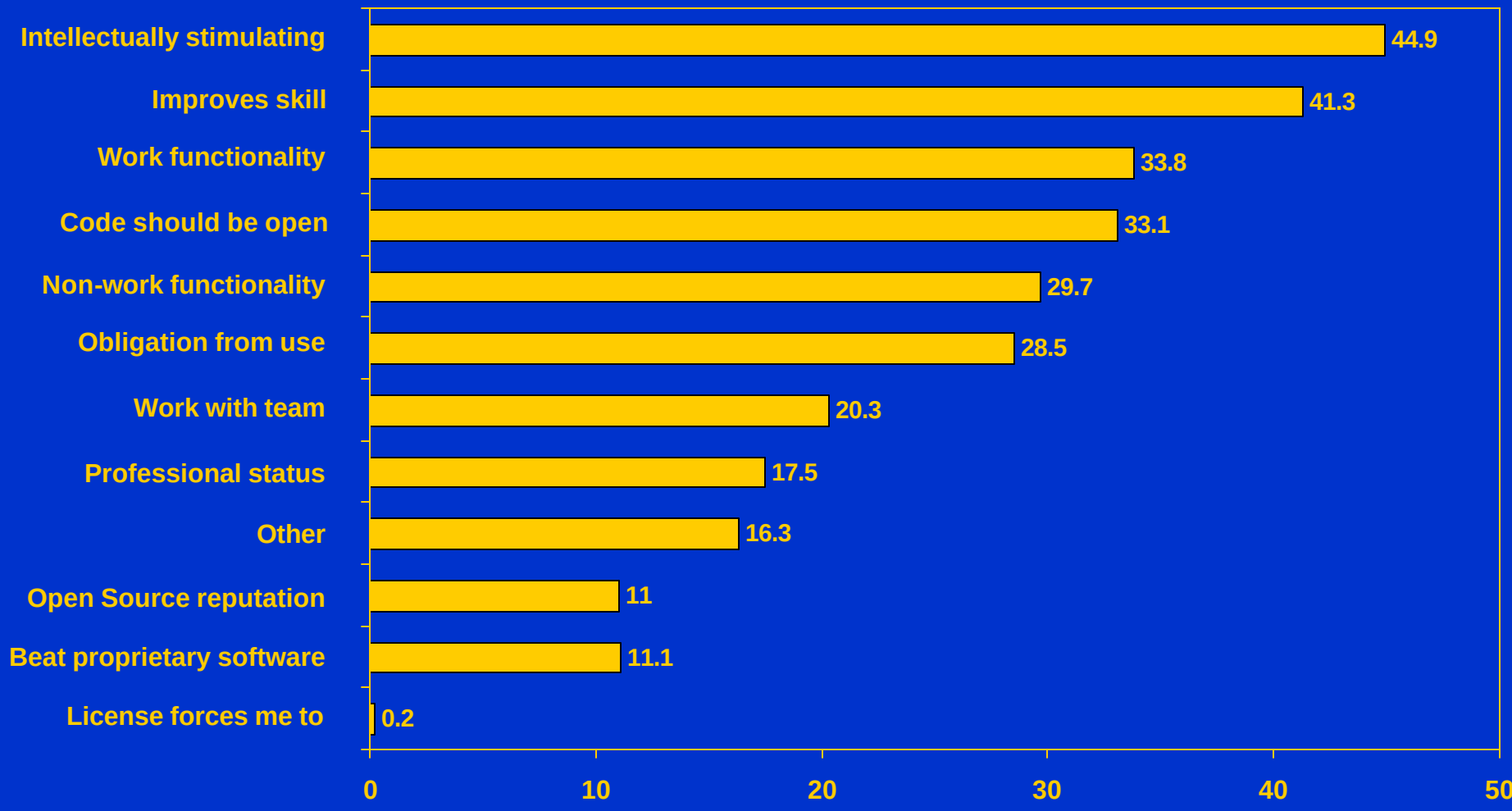
OVERALL HACKER MOTIVATIONS

?



Note: Question asked for top three motivators of F/OSS participation, n=684

Details

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VOLUNTEER CONTRIBUTORS MAKE UP MAJORITY OF RESPONDENTS

	Volunteer	Paid
Percent of responses	70	30
Selection criteria		
"Have you been financially compensated in any way for participating in this project?"	No	Yes
"Is your direct supervisor aware of your project participation (during work time)?"	No	Yes

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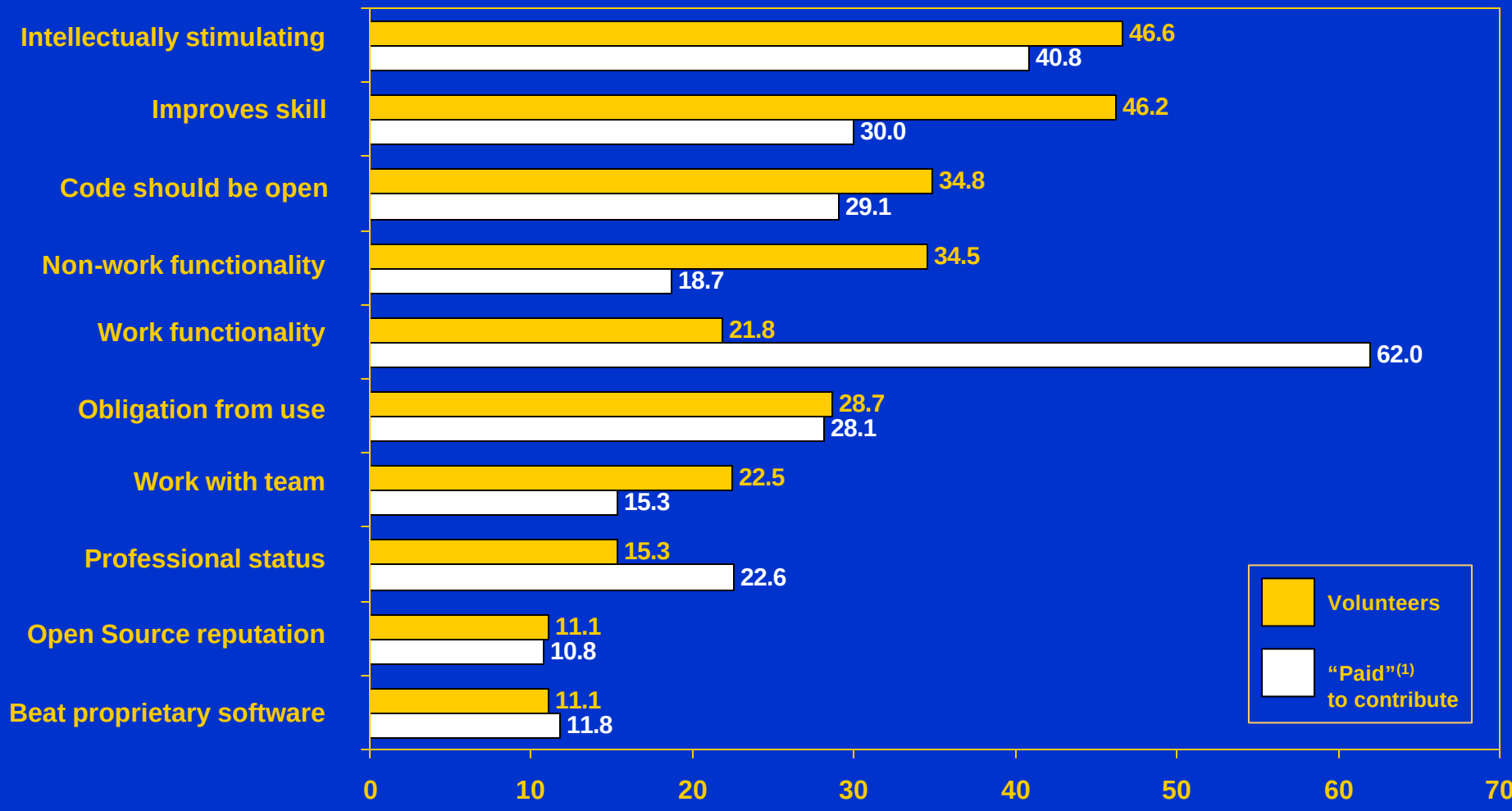
MOTIVATIONS DIFFER BETWEEN PAID AND VOLUNTEER CONTRIBUTORS

?



(1) Includes those working on F/OSS project full time, part time, and those sanctioned by supervisors
(2) Volunteers= 479, paid=205
Note: Question asked for top three motivators of F/OSS participation, n=684

% of respondents

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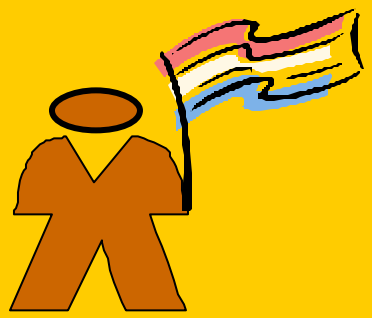
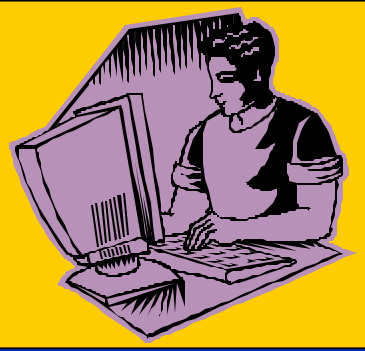
MOTIVATIONS AND CONTRIBUTION STATUS SEGMENT HACKERS

"Community Believers" (19%)



Do it because they feel obligation and believe source code should be open

"Professionals" (25%)



Do it for work need

Motivations

?

"Hobbyists" (27%)

Do it for non-work

"Learning & Stimulation" (29%)

Do it for skill improvement and fun

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MOTIVATIONS AND CONTRIBUTION STATUS SEGMENT HACKERS

Motivation	Professionals (%)	Hobbyists (%)	Learning and intellect (%)	Community believers (%)
Work functionality	**91**	8	12	28
Non-work functionality	11	**100**	0	2
Intellectually stimulating	41	45	**69**	12
Improves skill	20	43	**72**	19
Work with team	17	16	28	19
Code should be open	12	22	42	**64**
Beat proprietary software	11	8	9	19
Community reputation	14	8	11	13
Professional status	25	6	22	18
Obligation from use	23	20	6	**83**
Paid for contribution	**80**	11	11	20

Next in flow
Quotes
Details

Note: Percentages represent the % of respondents from that cluster that indicated that choice; boxed figures indicate a max for that motivation

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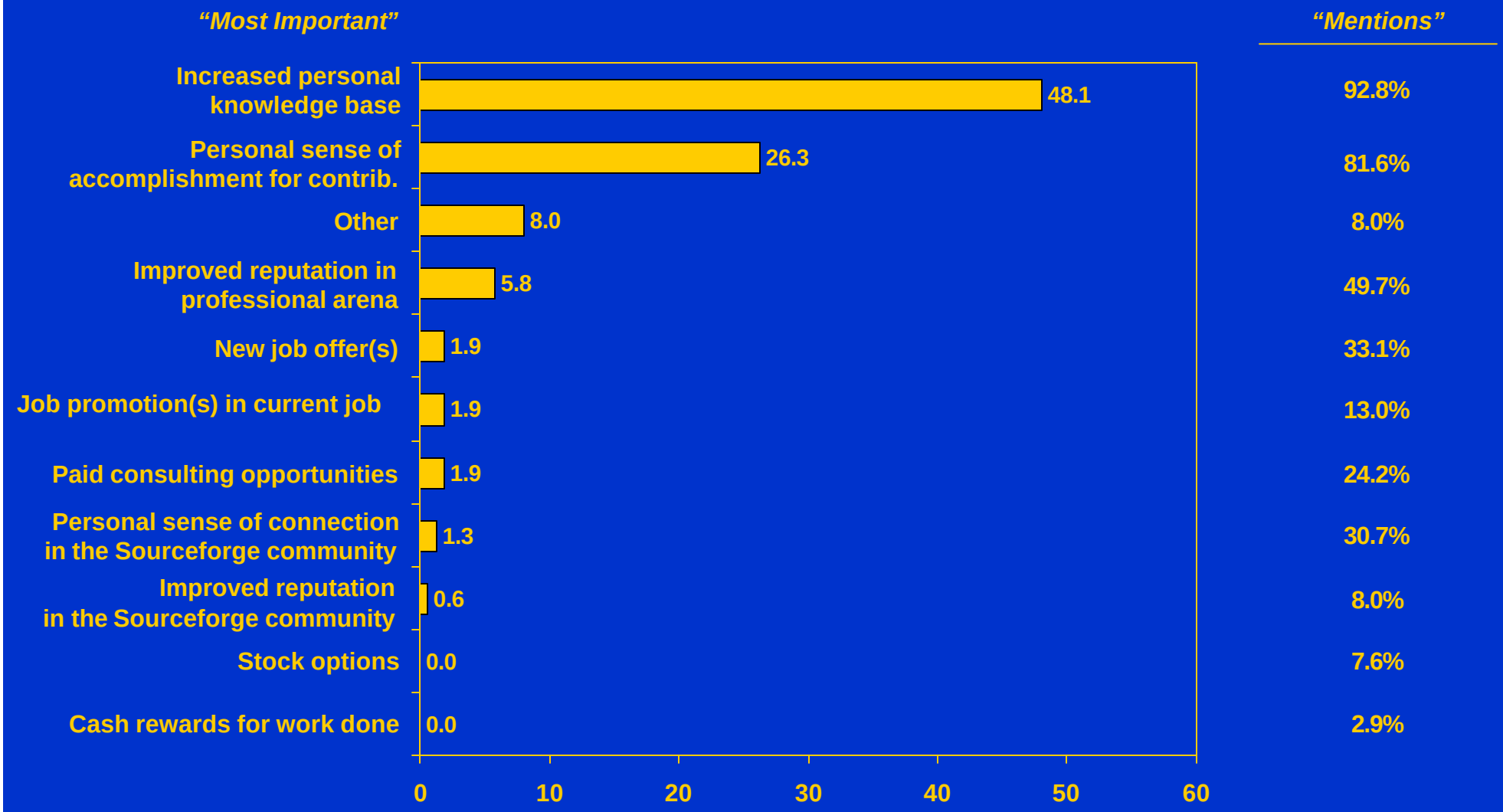
INCREASED PERSONAL KNOWLEDGE BASE MOST IMPORTANT BENEFIT OF PARTICIPATION



Note: Only mature projects were asked question, n=169

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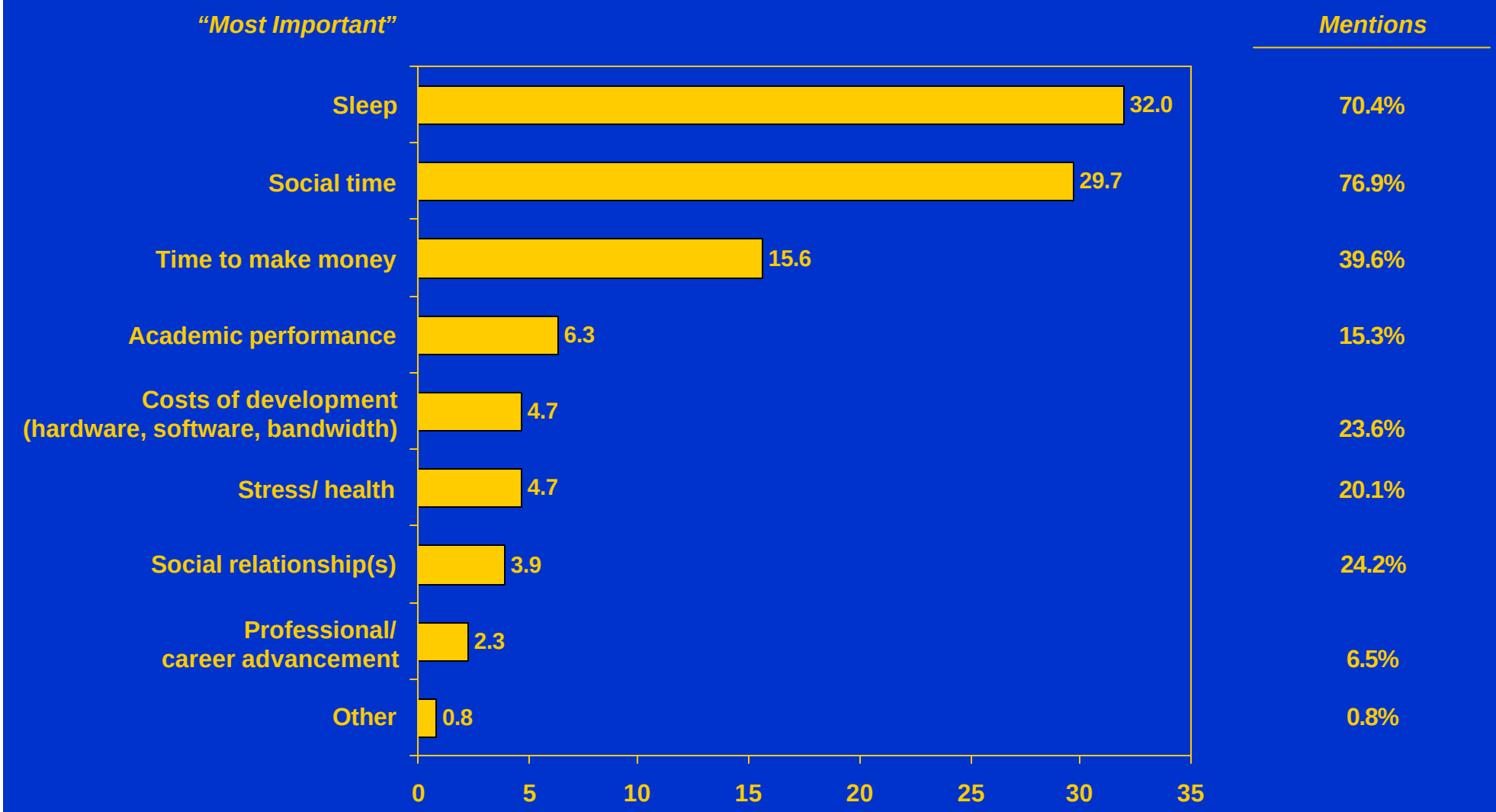
LACK OF SLEEP MOST IMPORTANT COST OF PARTICIPATION



Note: Only mature projects were asked question, n=169

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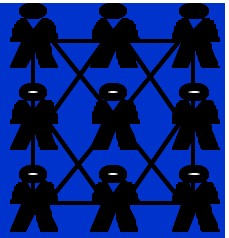
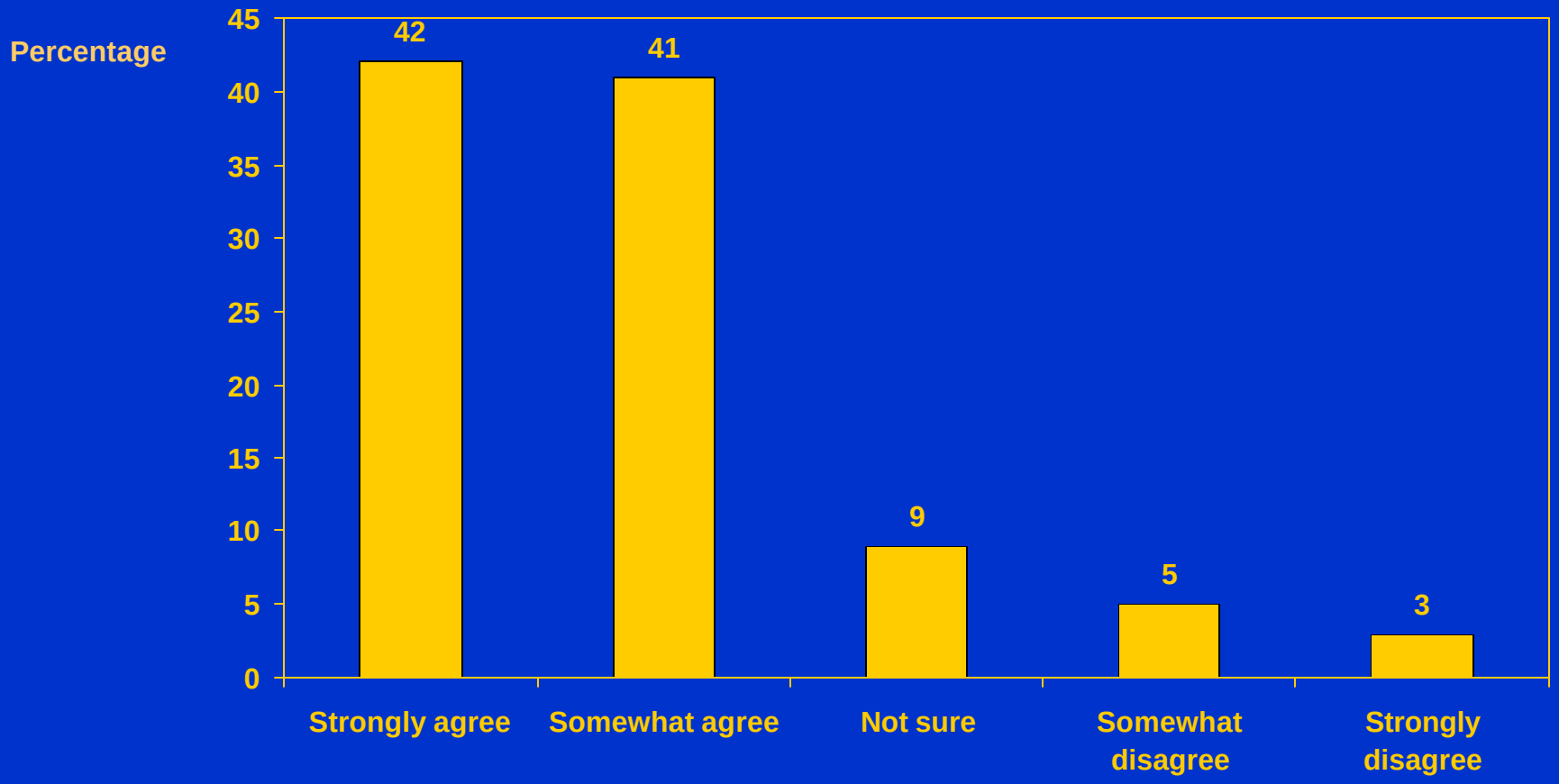
STRONG IDENTIFICATION WITH HACKER COMMUNITY



"Hackers are a primary community with which I identify"



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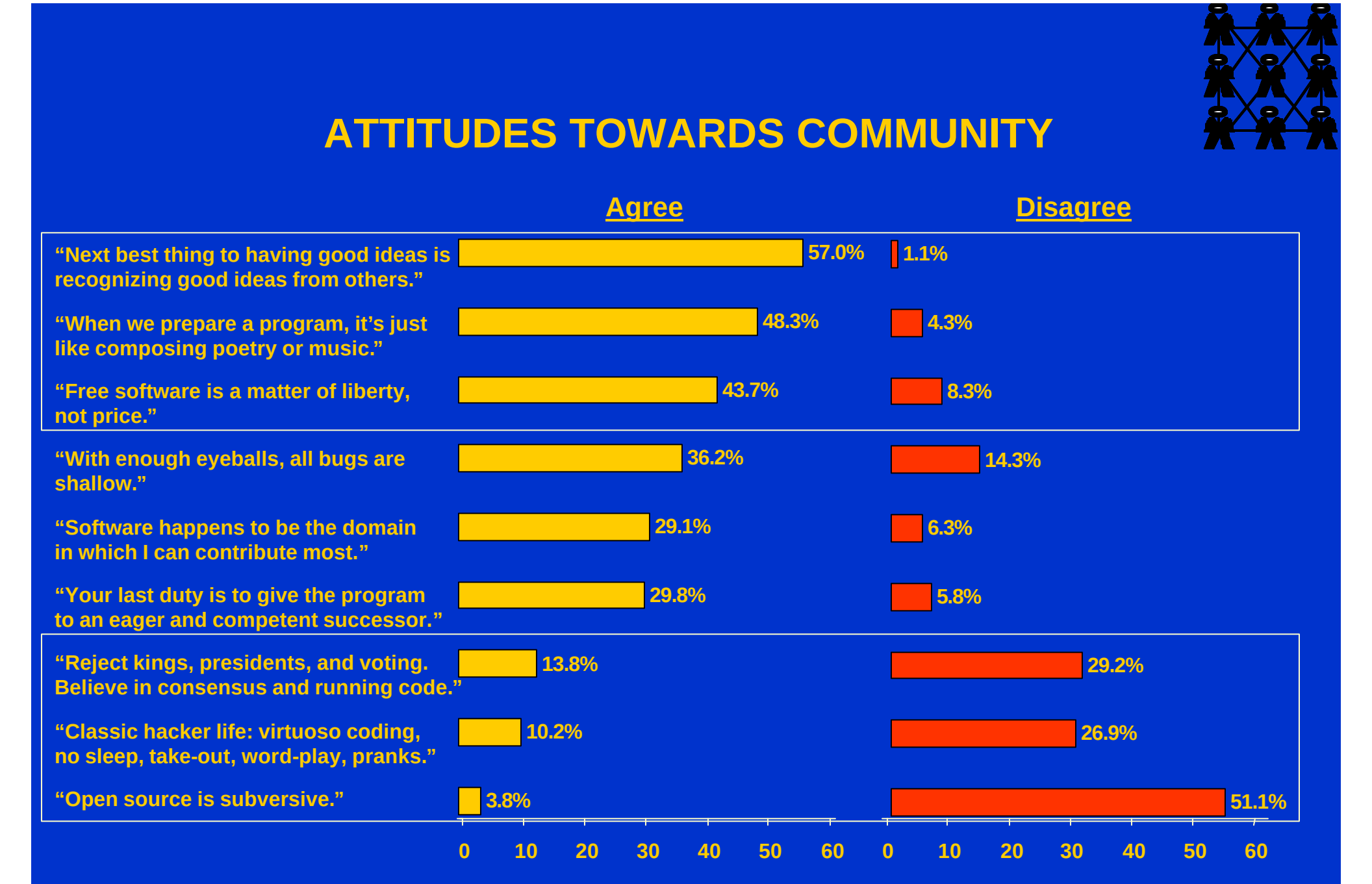
ATTITUDES TOWARDS COMMUNITY



Note on percentages: Question allowed respondent to choose up to three in both categories, n=684

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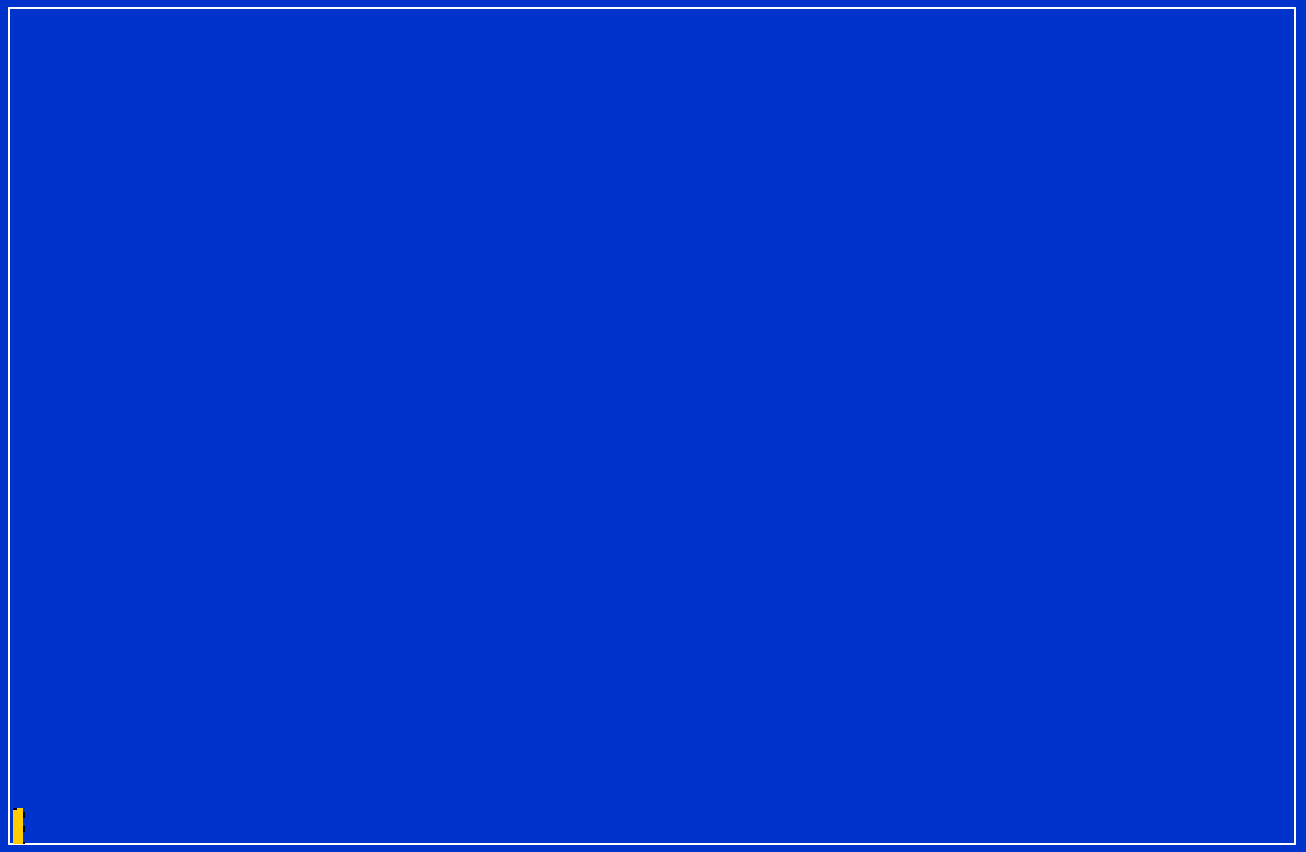
OPEN SOURCE IS A GENERATION “X” PHENOMENON

Average Age: 30Years



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OPEN SOURCE IS A GLOBAL ENTERPRISE

Venezuela 1

Argentina 3

Hungary 4

Brazil 9

Canada 39

Vancouver	*9*	*Montreal*	*2*
Toronto	*8*	*Calgary*	*1*
Ottawa	*3*	*Quebec City*	*1*

U.S. 267

SF Bay Area	*14*	*Madison*	*2*
Boston	*10*	*Minneapolis*	*2*
Denver	*10*	*Nashville*	*2*
Los Angeles	*10*	*Providence*	*2*
Atlanta	*6*	*Sacramento*	*2*
Austin	*6*	*Tampa*	*2*
New York	*6*	*Tulsa*	*2*
Baltimore	*5*	*Ames*	*1*
Kansas City	*5*	*Ann Arbor*	*1*
Portland	*5*	*Bozeman*	*1*
Seattle	*5*	*Charlotte*	*1*
St. Louis	*5*	*Cincinnati*	*1*
Washington	*5*	*Cleveland*	*1*
Columbus	*4*	*Ft. Lauderdale*	*1*
Detroit	*4*	*Gainesville*	*1*
Milwaukee	*4*	*Hartford*	*1*
Philadelphia	*4*	*Huntsville*	*1*
San Diego	*4*	*Lansing*	*1*
Dallas	*3*	*Louisville*	*1*
Houston	*3*	*New Haven*	*1*
Indianapolis	*3*	*New Orleans*	*1*
Pittsburgh	*3*	*Orlando*	*1*
Phoenix	*3*	*Richmond*	*1*
Salt Lake City	*3*	*San Antonio*	*1*
Chicago	*2*	*Syracuse*	*1*
Lexington	*2*		

Austria 5

Denmark 6

Spain 7

Belgium 8

Switzerland 10

Norway 11

Italy 15

Sweden 15

France 25

Netherlands 25

U.K. 45

London	*16*
Leeds	*4*
Bristol	*2*
Manchester	*2*
Edinburgh	*1*

Germany 77

Munich	*7*	*Aachen*	*2*
Berlin	*6*	*Dusseldorf*	*2*
Frankfurt	*5*	*Heidelberg*	*2*
Stuttgart	*5*	*Cologne*	*1*
Nuremberg	*4*	*Hannover*	*1*
Hamburg	*3*	*Leipzig*	*1*

Lithuania 1
Latvia 1
Ireland 1
Iceland 1
Estonia 1
Croatia 1
Bulgaria 1
Belarus 1
Slovak Rep. 2
Russia 2
Portugal 2
Poland 2
Finland 2
Czech Rep. 2
Slovenia 3
Greece 3
Romania 4

Taiwan 1
South Korea 1
Singapore 1
Malaysia 1
Japan 1
Indonesia 1
Hong Kong 1
China 2
New Zealand 4

Australia 42

Sydney	*9*
Canberra	*5*
Melbourne	*5*
Brisbane	*2*
Queensland	*1*

South Africa 1
Morocco 1
Gabon 1
Armenia 1
Angola 1
Israel 3
India 8

Americas 46.9%

Europe 42.4%

ROW 10.7%

Note: n = 519 total responses, ROW = Rest of the World

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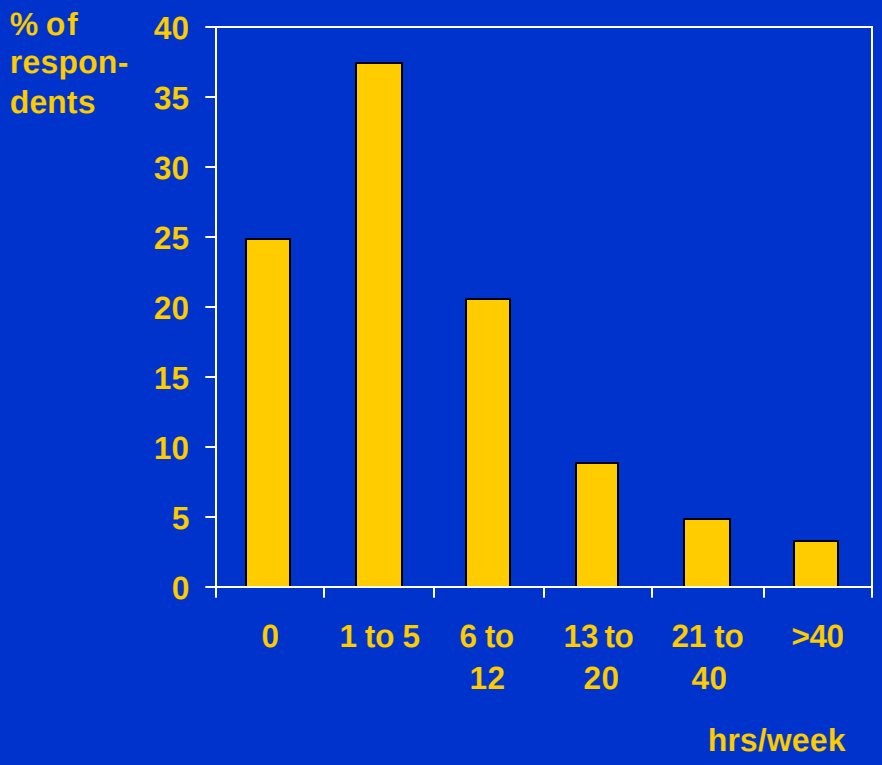
RESPONDENTS VOLUNTEER A LOT OF TIME

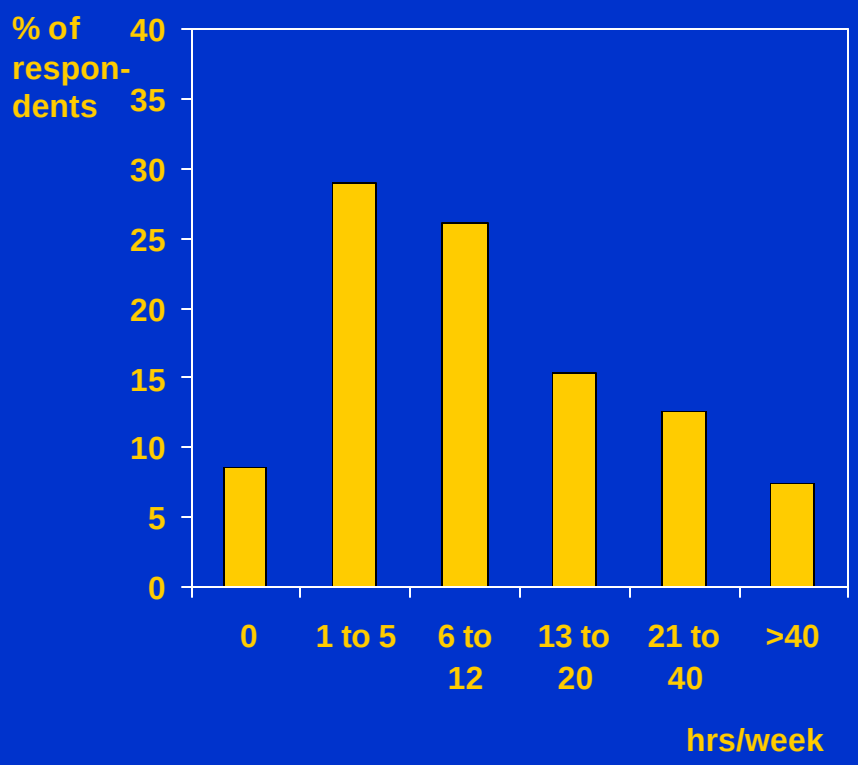
"This" Project

Overall mean=7.5 hours/ week
Volunteers=5.8 hours Paid= 11.4 hours



All Projects

Overall mean= 14.09 hours/ week
Volunteers=13.5 hours Paid= 20.9 hours



Note: n=684

Details

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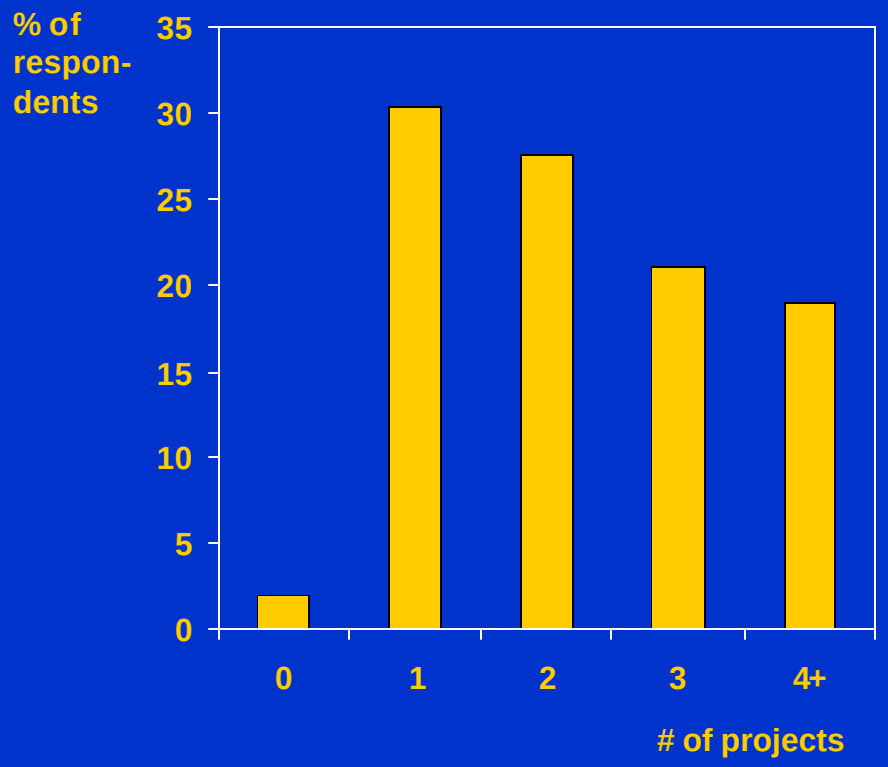
CONTRIBUTE TO MANY PROJECTS

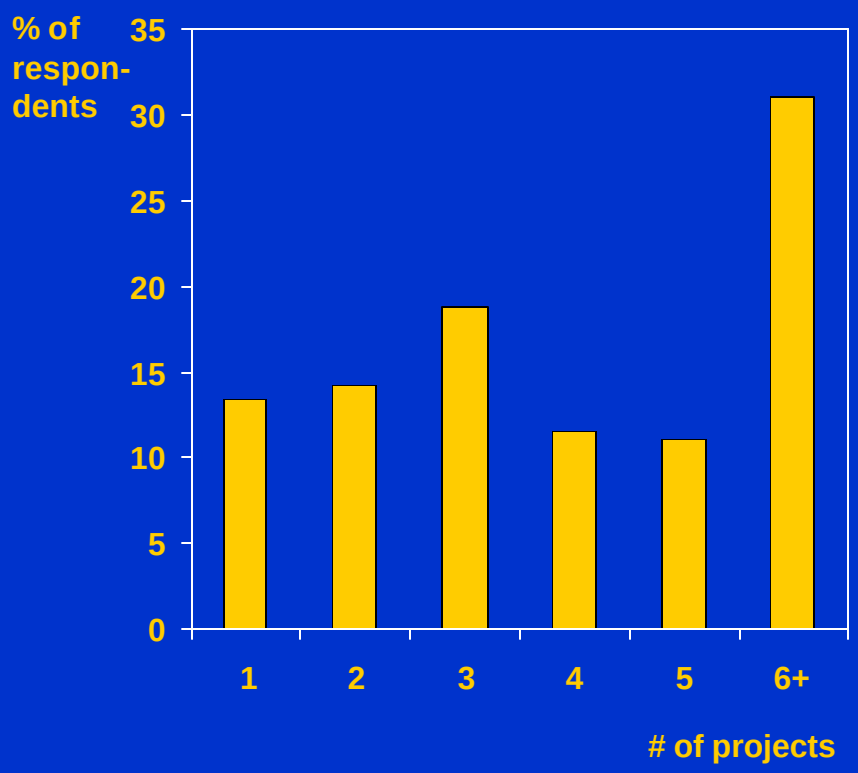
Current Projects

Mean = 2.6
Volunteer = 2.4 Paid = 3.0



All Projects

Mean = 4.9
Volunteer = 4.5 Paid = 5.8



Note: N = 684

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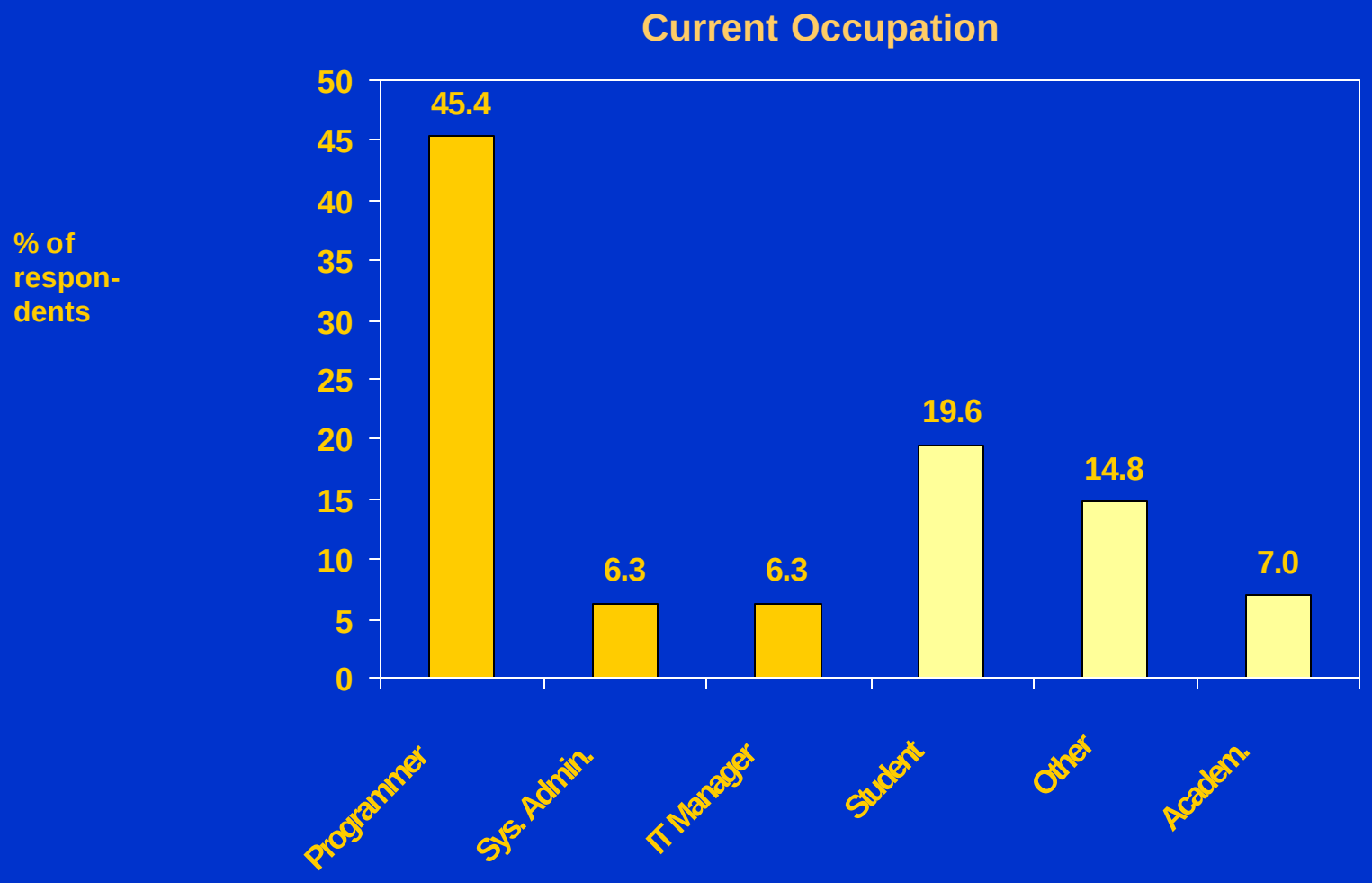
PARTICIPANTS ARE MOSTLY EXPERIENCED IT PROFESSIONALS



Average 11 years of programming experience

Note: n=678

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PROJECT CREATIVITY LARGEST DRIVER OF EFFORT
Regression on Project Hours/ Week

What is significant?

+ Creativity on project
+ Professional status *
- IT Training *

What is not?

Age
IT Job
Hacker affiliation
Founder of project
Prior social connection
USA based
Work functionality
Non-work functionality
Intellectually stimulating
Improves skill
Work with team
Code should be open
Beat proprietary software
Community reputation
Obligation from use

* Volunteers only

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HIGH PROJECT CREATIVITY DRIVES HOURS CONTRIBUTED

	Volunteers	Paid
Average hours/ week contributed	5.8	11.4
Impact of unit change in creativity (scale: 1- much less, 2-somewhat less, 3-equally, 4-most creative)	3.3	6.3
Anticipated hours with one unit increase in creativity	9.1	17.7
Percent increase in hours	57%	55%

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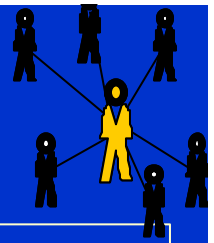
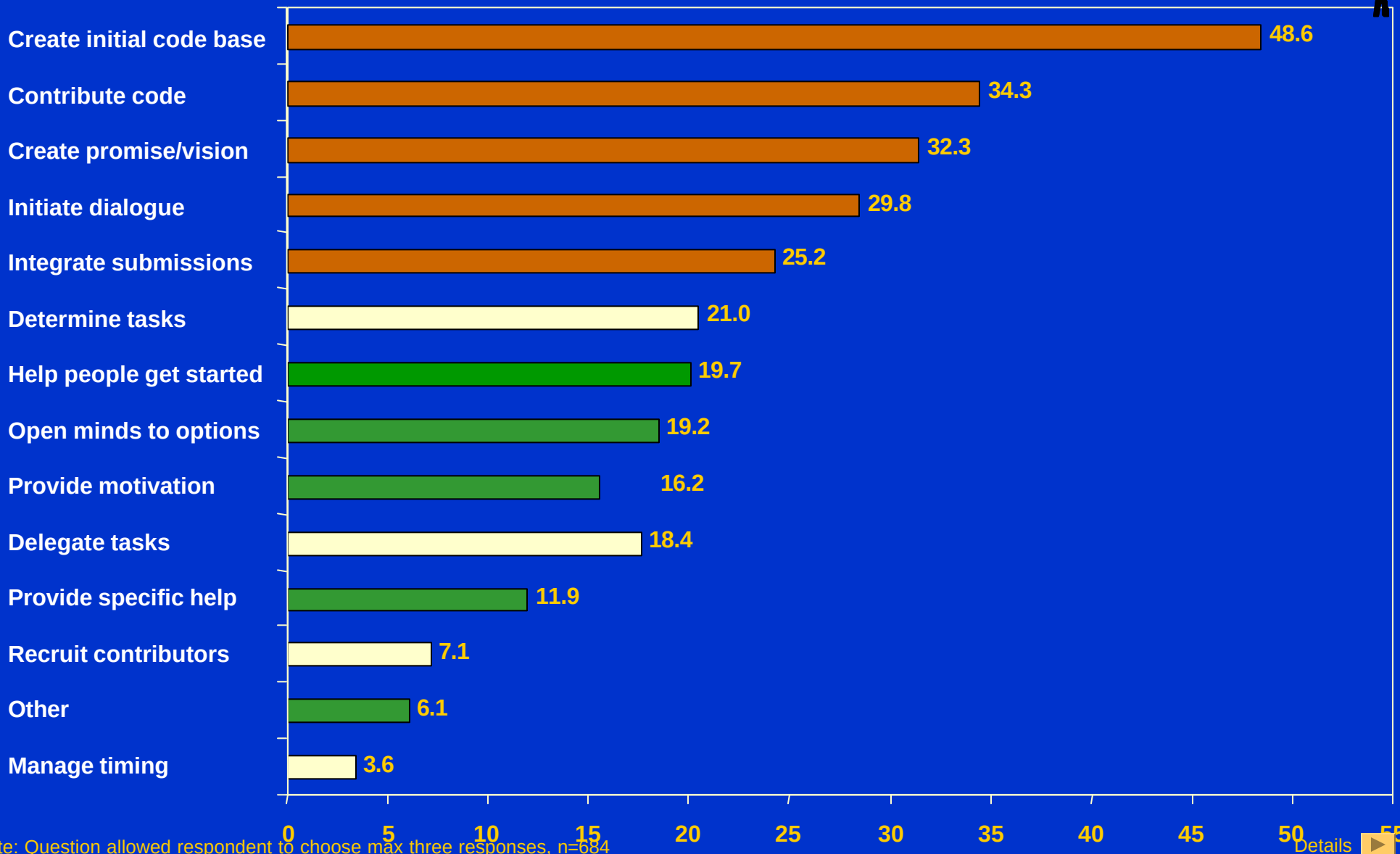
HACKERS WANT PEER LEADERS, NOT TRADITIONAL PROJECT MANAGERS





Note: Question allowed respondent to choose max three responses, n=684

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SUMMARY OF SOURCEFORGE.NET F/OSS HACKER COMMUNITY

	Community Believers (19%)	Learning & Fun (29%)	Hobbyists (27%)	Professionals (25%)
Key Moti-vators	"I believe source code should be open"	"My activity on this project improves my programming skills"	Non-work needs for the code	Work needs for the code Enhances prof. and OS community status
Work & Lifestyle	Hacking is central to lifestyle	Most likely to be a student Would work for MSFT	Closely identifies with hacker community	Most likely to hack as part of their job Extensive programming experience
Creativity & Leadership	Find projects to be as creative as anything they have done Report experiences similar to "flow" and other creativity-related phenomena Want peer leaders, not traditional project managers			

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- What is SourceForge.net?

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- Data & findings

Questions and implications

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WHERE TO GET THIS PRESENTATION

http://www.bcg.com/opensource

http://www.osdn.com/bcg

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ADDITIONAL DETAIL

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OPEN SOURCE TURNS ON HACKERS

"This project compared to my most creative experience is:"

My most creative effort	12.3%	61.7%
Equally as creative	49.4%	
Somewhat less creative	30.1%	
Much less creative	8.1%	

"When I program, I lose track of time."

Always	21.3%	72.6%
Frequently	51.3%	
Sometimes	22.2%	
Rarely	4.1%	
Never	0.7%	

"With one more hour in the day, I would program."

Always	12.9%	60.0%
Frequently	47.1%	
Sometimes	34.5%	
Rarely	4.1%	
Never	1.3%	

Note: n = 674, 678 and 681 total responses, respectively

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"PLEASE INDICATE YOUR TOP 3 REASONS FOR CONTRIBUTING TO THIS PROJECT"

The code for this project is intellectually stimulating to write	44.9%
My activity on this project improves my programming skill	41.3%
I believe source code should be open	33.1%
My contribution creates specific functionality in the code needed for my non-work life	29.7%
My contribution creates specific functionality in the code needed for my work	33.8%
I feel a personal obligation to contribute since I use free/open source software	28.5%
I like working with the development team on this project	20.3%
My contributions will enhance my professional status	17.5%
Other	16.3%
My contributions will enhance my reputation in the free/open source software community	11.0%
I dislike proprietary software or the companies that produce it and want to help the free/open source community defeat them	11.1%
The license for this project forces me to contribute my changes	0.2%

Note: n = 684 total responses

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K-MEANS CLUSTER ANALYSIS MOST COMMON TOOL FOR POST HOC ANALYSIS

"Birds of a feather flock together"

Objective: Group individuals into segments

- Individuals within segments are similar
- Different from those in other segments

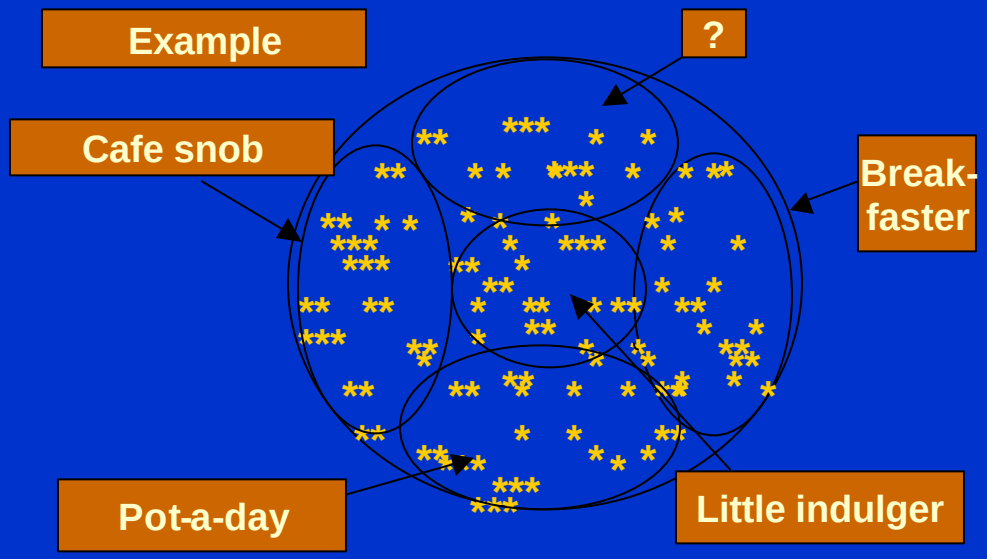
Free parameter: Number of clusters

- Each new cluster increases internal homogeneity, but adds more complexity
- Algorithm tends to generate equal-sized clusters

Applicability: General

- Most commonly used to segment individuals
- May also be used to segment stores or products

Post hoc: derived, "bottom up"



- Decide on number of clusters
- Let algorithm create clusters
  - homogeneous within
  - heterogeneous between
- Detect cluster commonality
- Judge cluster quality
- Iterate, changing number of clusters

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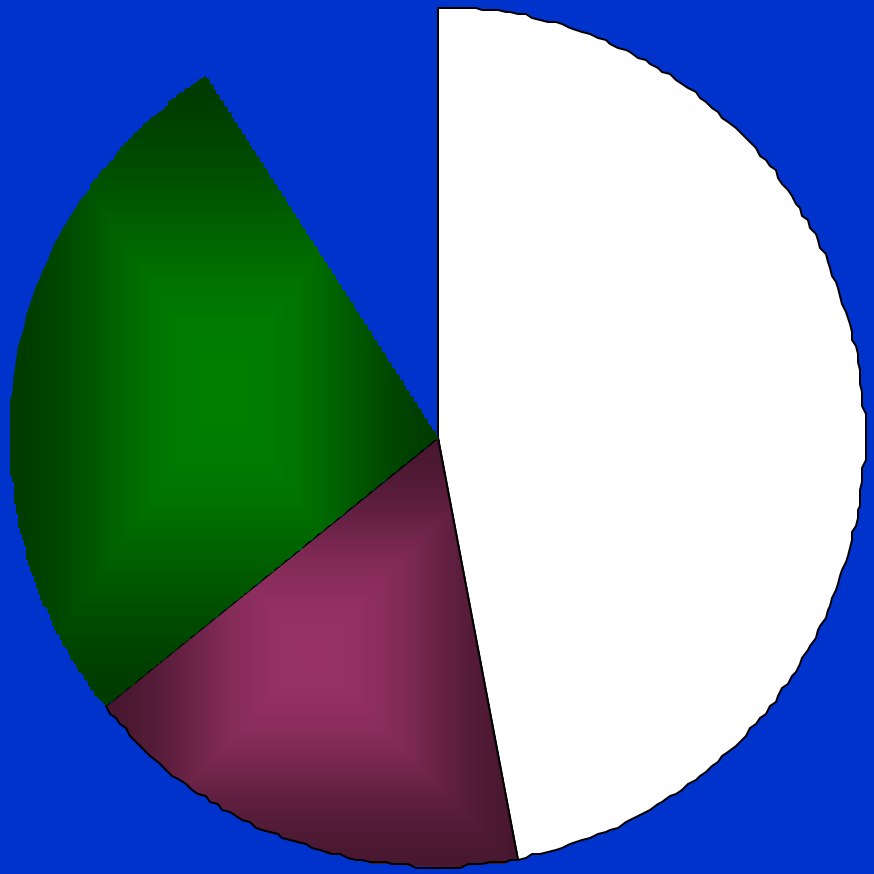
PARTICIPATION AT WORK



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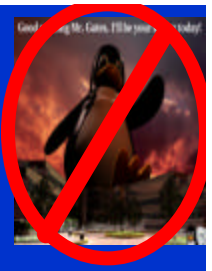

HACKERS PRAGMATIC ABOUT PROJECT SELECTION

“Under What Circumstances Would You Work on a Closed-Source Software Project?”

If it would pay me enough to support my lifestyle	72.5%
If it were a significant advance in software development	33.1%
If it was on an interesting topic and there were no open source equivalents	32.8%
If it would make me famous in the software world	15.9%
Other	14.1%
I would never participate in proprietary software development	5.4%

Note: n = 684 total responses

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"PLEASE INDICATE THE 3 MOST IMPORTANT WAYS THAT PROJECT LEADERS CAN ENHANCE PROJECTS"

Create the initial code base for the project	48.6%
Continue to contribute code through the duration of the project	34.3%
Create a plausible promise for the project (vision)	32.3%
Initiate constructive dialogue with the developer community on project issue	29.8%
Integrate various submissions	25.2%
Determine the appropriate tasks for the project	21.0%
Help people get started	19.7%
Open minds to alternative approaches	19.2%
Provide motivation	16.2%
Delegate appropriate tasks for the project	18.4%
Provide specific help or responses to questions	11.9%
Recruit additional project contributors	7.1%
Other	6.1%
Manage the timing of project contributions	3.6%

Note: n = 684 total responses
Note on percentages: Question allowed respondent to choose three

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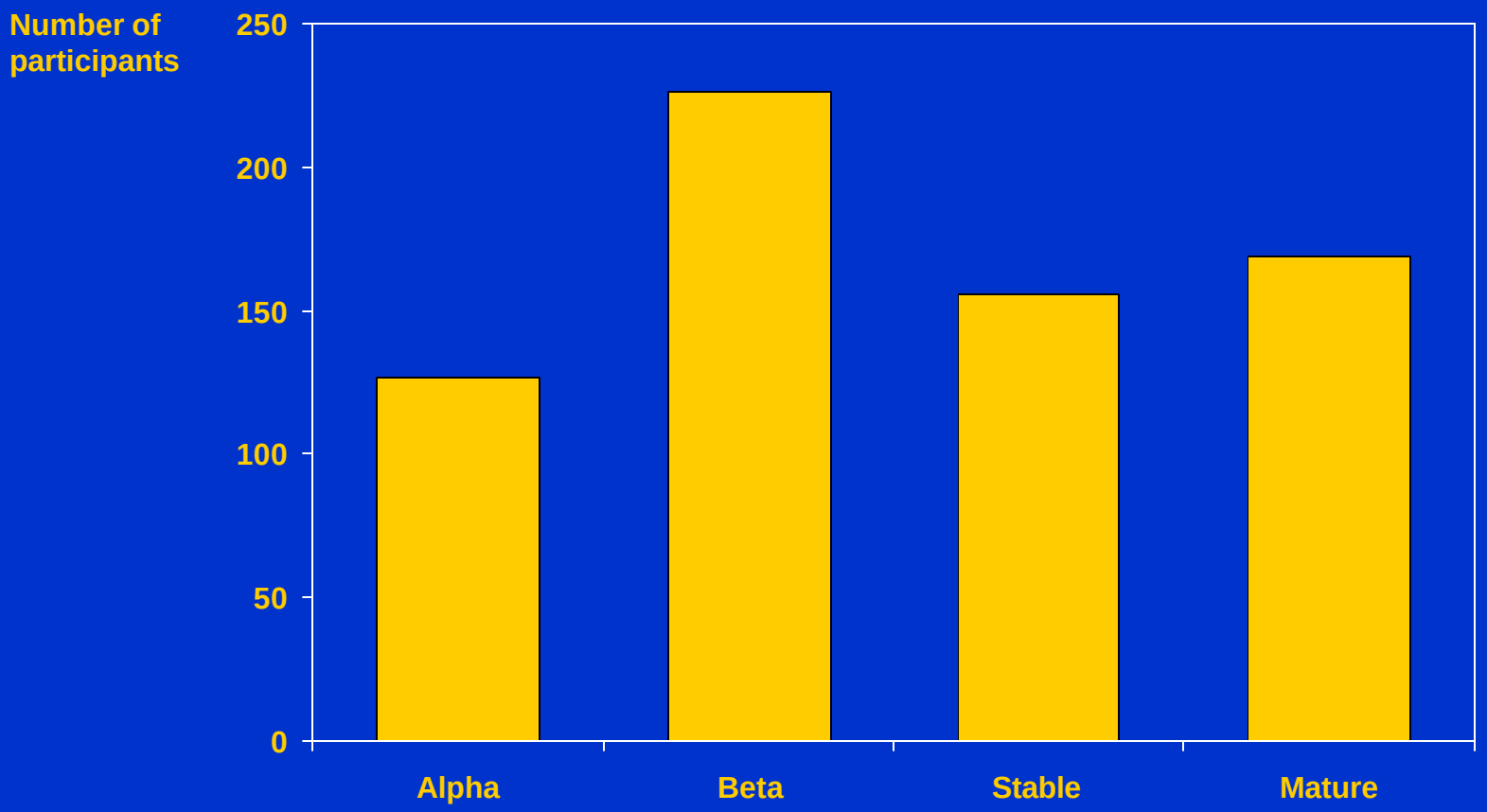
DEVELOPMENT STATUS BY PARTICIPANTS



Previous
Next in flow

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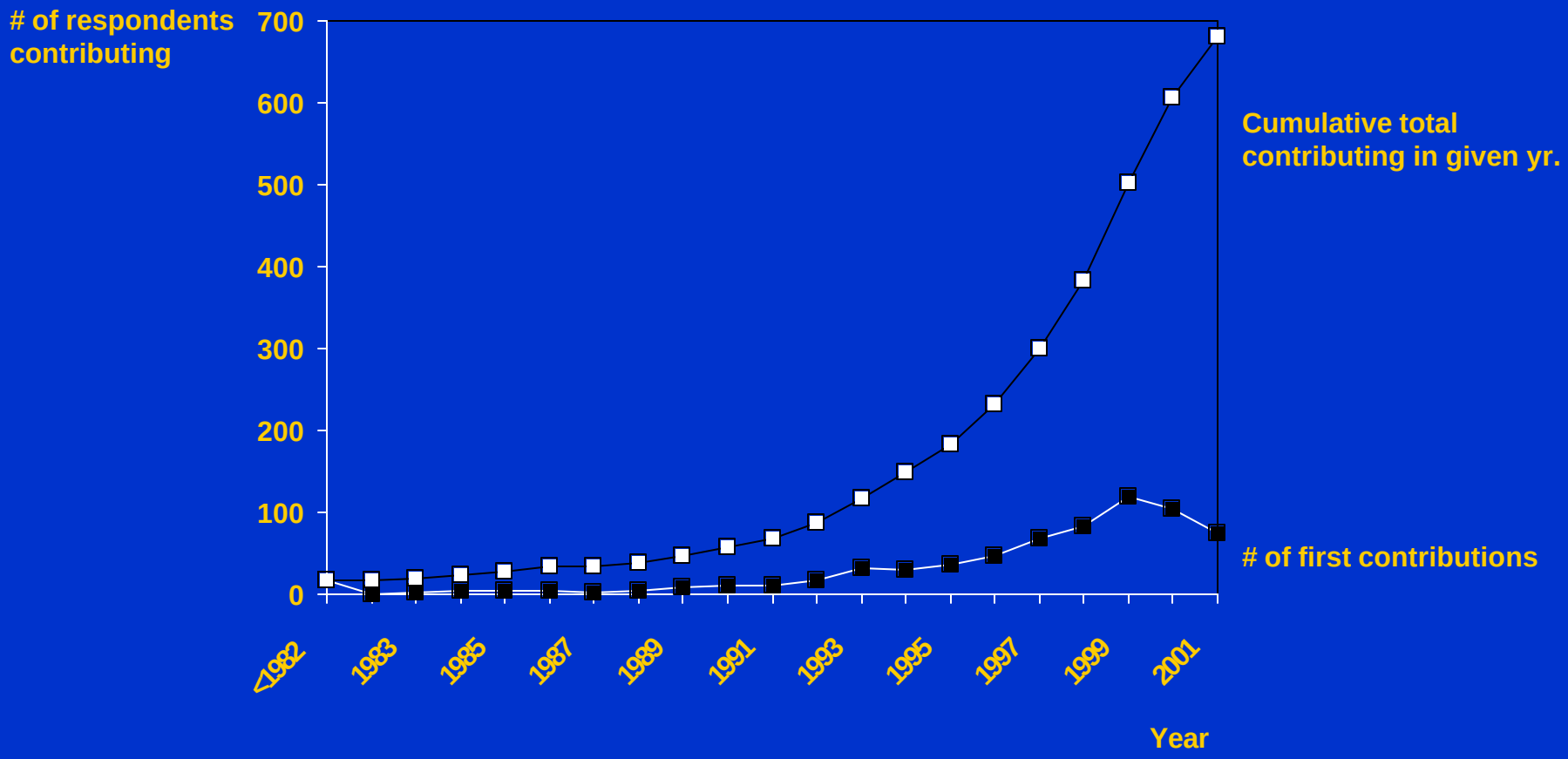
OPEN SOURCE COMMUNITY IS GROWING



Note: n = 582 total responses
Note: Question of possible trend to be included in follow-up interviews

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"SINCE YOUR INITIAL INVOLVEMENT, HOW HAS THE AMOUNT OF TIME YOU SPEND ON FREE/OPEN SOURCE PROJECTS CHANGED?"

On average, I spend more time than when I first started	28.6%
The time I spend has stayed about the same	14.3%
On average, I spend less time than when I first started	19.3%
My involvement is completely variable	37.4%

Note: n = 678 total responses

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"HOW LIKELY WOULD YOU BE TO CONTRIBUTE TO A FREE/OPEN SOURCE SOFTWARE PROJECT THAT DELIVERS MORE DIRECT VALUE PRIMARILY TO AVERAGE USERS THAN TO YOU OR YOUR PEER GROUP?"

Very likely	19.3%
Likely	31.1%
Indifferent	27.0%
Unlikely	17.6%
Very unlikely	4.7%

Note: n =681 total responses

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