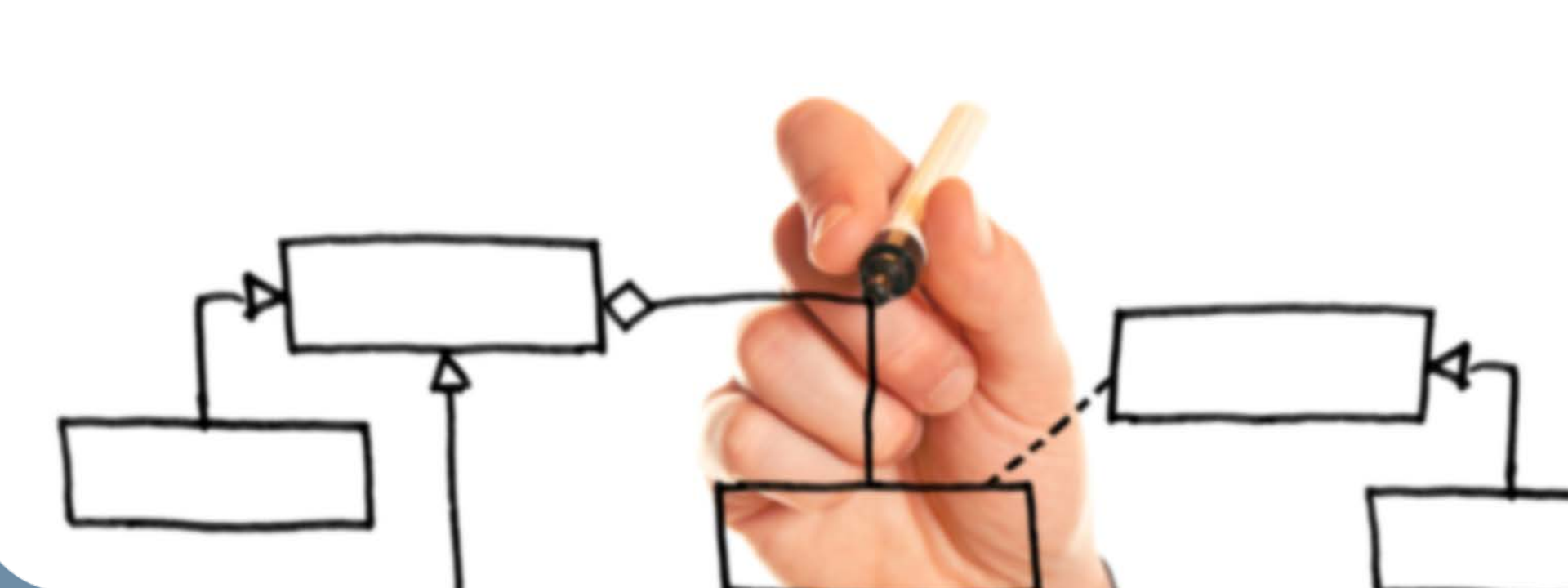




Public Perceptions of Engineers & Engineering



March 29, 2017



Methodology & Demographics

Research Objectives and Methodology

Overview

Innovative Research Group (INNOVATIVE) was commissioned by **Engineers Canada** to conduct a national public opinion research survey designed to gauge perceptions of professional engineers.

Methodology

This survey was conducted online among **1,200** randomly-selected Canadian residents, 18 years or older, between **December 22nd** and **27th, 2016**.

Respondents qualified to complete the survey if they:

- **Were 18 years of age or older**
- **Are not currently licensed as a professional engineer (P.Eng.)**

The sample has been weighted by age, gender and region using the 2011 Statistics Canada Census data to reflect the actual demographic composition of the adult population residing in Canada.

Since the online survey was not a random probability based sample, a margin of error cannot be calculated. The Marketing Research and Intelligence Association prohibits statements about margins of sampling error or population estimates with regard to most online panels. However, a random probability based sample of this size would have an estimated margin of error of 19 times out of 20. The estimated margin of error would be larger within each sub-grouping of the $\pm 2.8\%$ sample.

Note: *Graphs may not always total 100% due to rounding values rather than any error in data. Sums are added before rounding numbers.*

Demographics: Regional Breakdown

Sample has been weighted based on age, gender and region. Below is the distribution across Canada.

Regional groupings include:

- British Columbia (Yukon)
- Alberta (Northwest Territories)
- Prairie Region (Manitoba, Saskatchewan and Nunavut)
- Ontario
- Quebec
- Atlantic (PEI, New Brunswick, Nova Scotia and Newfoundland & Labrador)

National Sample

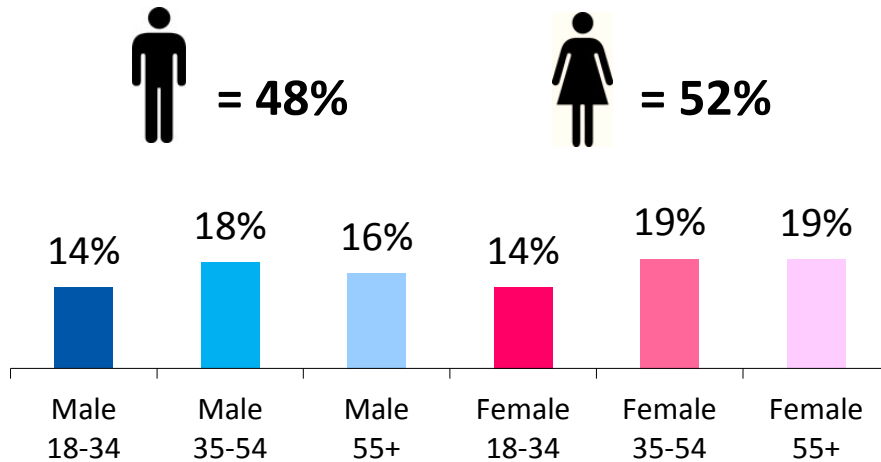
n=1,200

Unweighted n=1,214

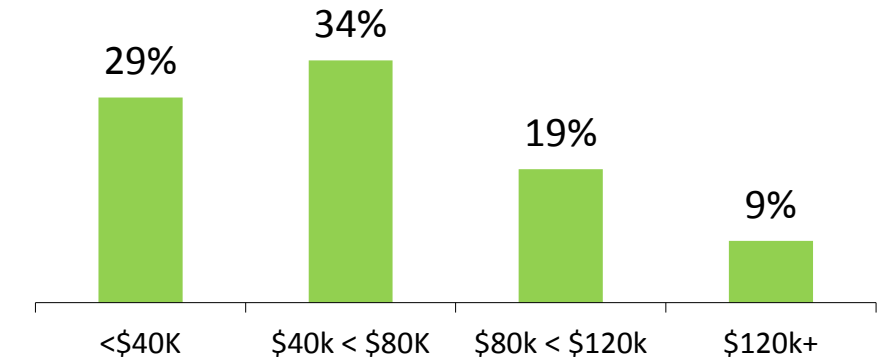
	BC	AB	Prairies	Ontario	Quebec	Atlantic	Total
Sample (n)	167	128	80	463	288	88	1,214
Sample (%)	13%	11%	7%	38%	24%	7%	100%
Population (%)	13.5	10.7	6.5	38.2	23.9	7.1	100%
Weighted (n)	162	129	78	459	287	85	1,200
MoE (pp)*	±7.6%	±8.7%	±11.0%	±4.6%	±5.8%	±10.5%	±2.8%

Demographics: Respondent Profile

Age-Gender

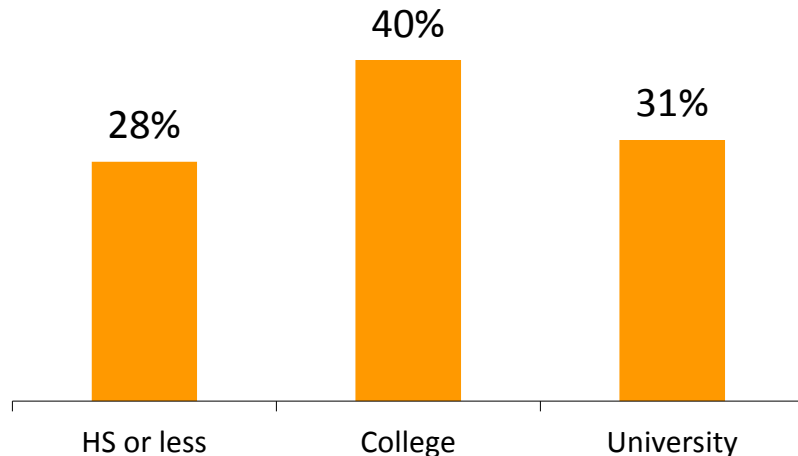


Household Income



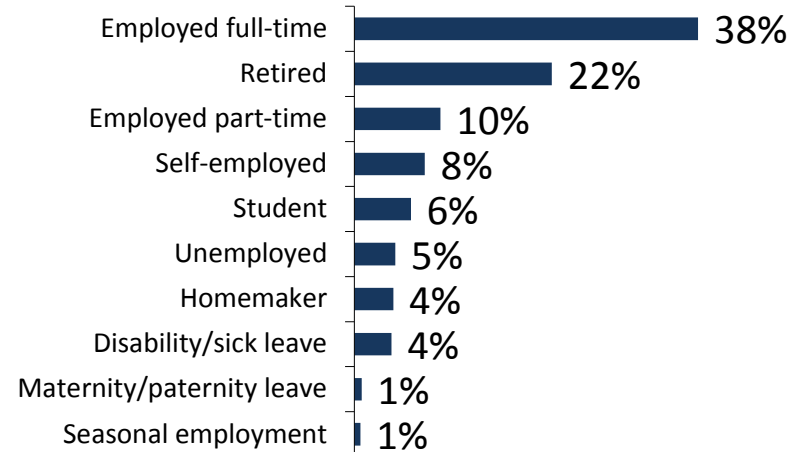
Note: 'Prefer not to say' (9%) not shown

Education



Note: 'Prefer not to say' (1%) not shown

Employment Status



Note: 'Prefer not to say' (2%) not shown



Awareness and Impressions

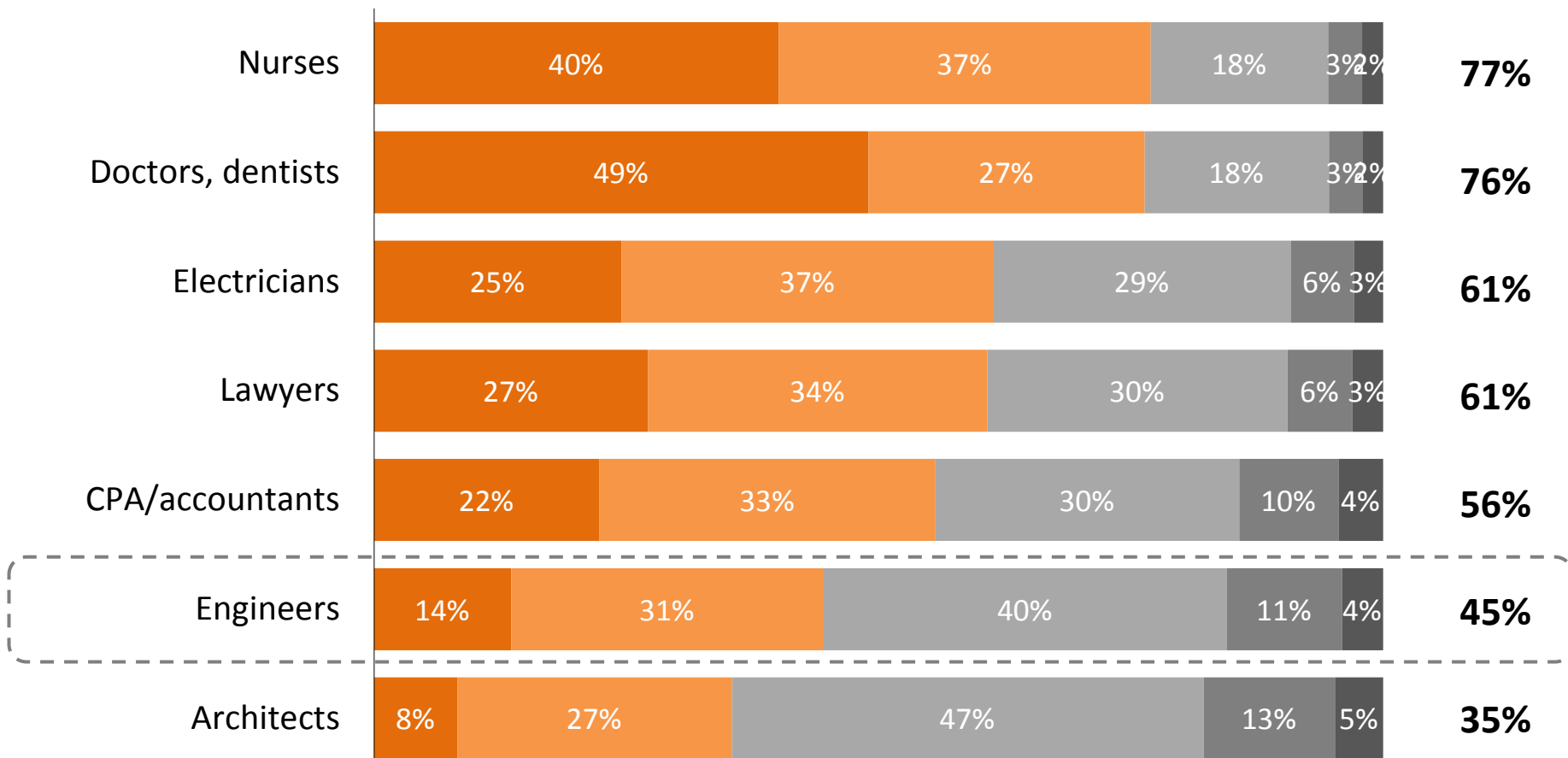
Familiarity: Engineers rank second last; 2-in-5 (40%) respondents are aware but not very familiar



How **familiar** are you with each of the following?

[asked of all respondents; n=1,200]

Familiarity
(Very + Somewhat)



- Very familiar - first hand, from personal use/experience
- Somewhat familiar - second hand, from acquaintances, family etc.
- Aware but not very familiar - vague familiarity, general awareness of the name, of what they do
- Not familiar - not at all, have heard the name, but don't know any or much about them
- Don't know

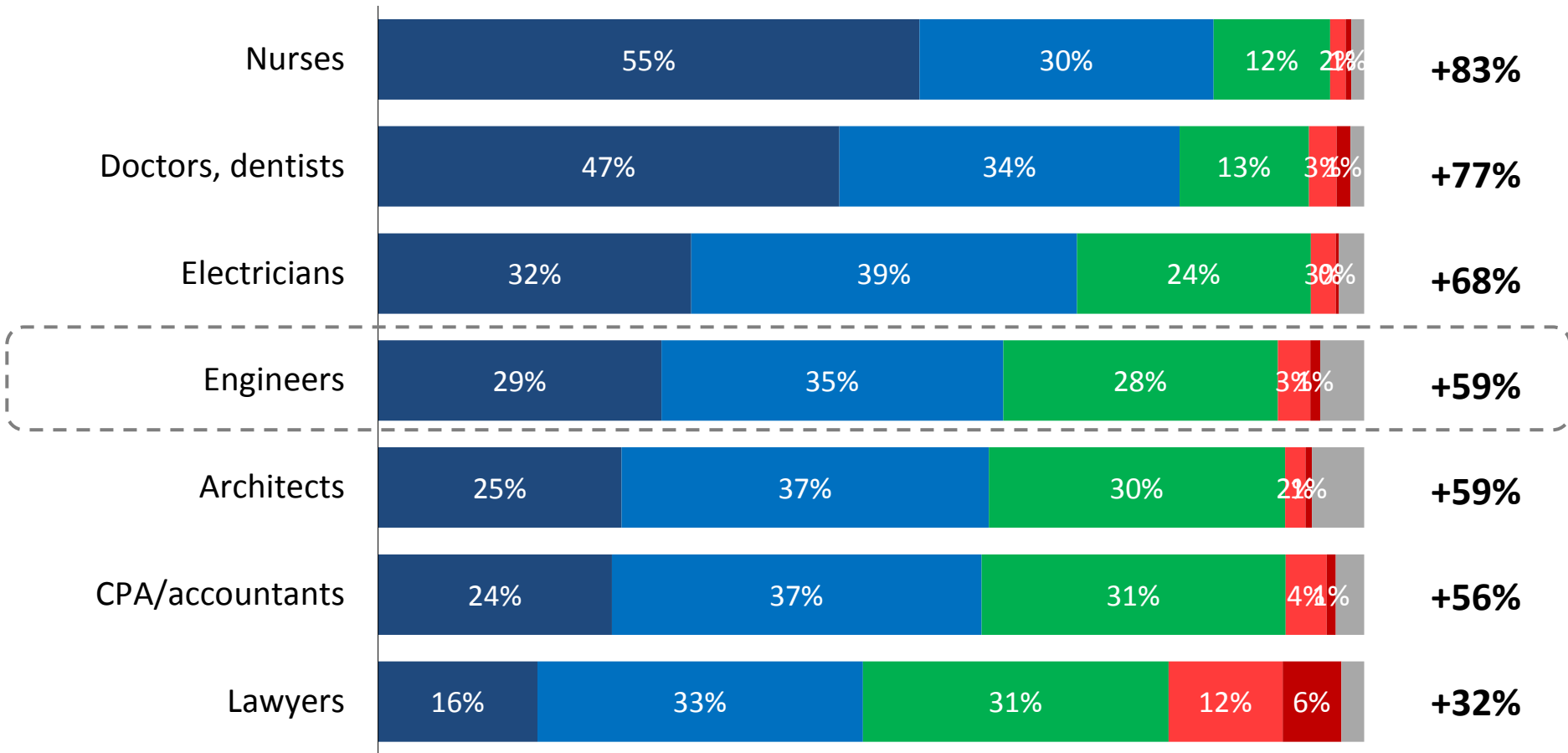
Overall Impression: Impressions of engineers are middle of the pack 8



What is your **overall impression** of each of the following?

[asked of all respondents; n=1,200]

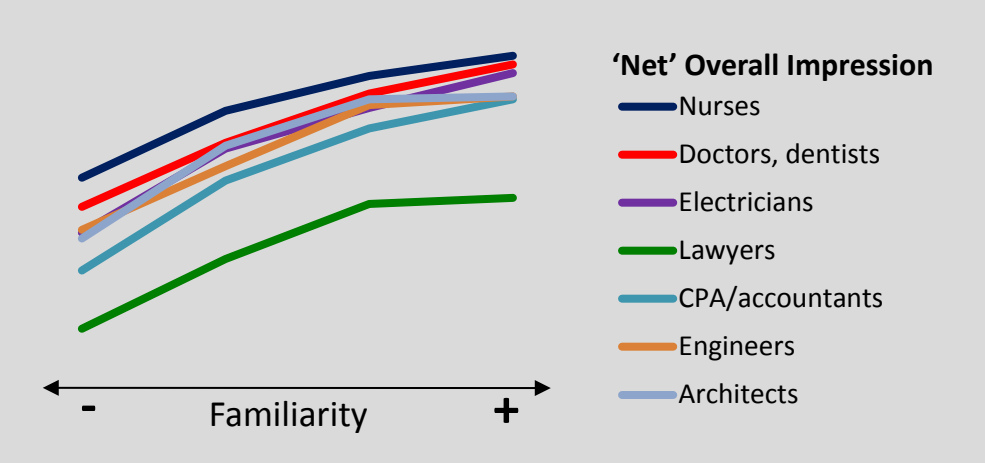
Net Favourability
(Favourable) – (Unfavourable)



- Very favourable
- Somewhat favourable
- Neither favourable nor unfavourable
- Somewhat unfavourable
- Very unfavourable
- Don't know

Overall Impression by Familiarity

Profession	"Net" Overall Impression	Very familiar – First hand, from personal use/experience	Somewhat familiar – Second hand, from acquaintances, family, etc.	Aware but not very familiar – Vague familiarity, general awareness	Not familiar – Not at all, heard name, but don't know much about them	Total
	Nurses	91%	84%	72%	49%	83%
Doctors, dentists	88%	78%	61%	39%	77%	
Electricians	85%	73%	59%	30%	68%	
Lawyers	42%	40%	21%	-3%	31%	
CPA/accountants	76%	66%	48%	17%	56%	
Engineers	77%	74%	53%	31%	59%	
Architects	77%	76%	60%	28%	59%	



Overall Impression by Familiarity: Those most familiar with engineers have a higher level of favourability

Familiarity with Engineers

	Very familiar - First hand, from personal use/experience	Somewhat familiar - Second hand, from acquaintances, family etc.	Aware but not very familiar - Vague familiarity, general awareness	Not familiar - Not at all, heard name, but don't much about them	Total	
Impression of Engineers	Very favourable	55%	34%	23%	10%	29%
	Somewhat favourable	28%	43%	34%	28%	35%
	Neither favourable nor unfavourable	12%	18%	35%	43%	28%
	Somewhat unfavourable	5%	3%	3%	5%	3%
	Very unfavourable	1%	0%	1%	2%	1%

82%

77%

58%

38%

6%

3%

4%

7%

82% Of respondents who are familiar with engineers also hold a favourable overall impression of the profession.

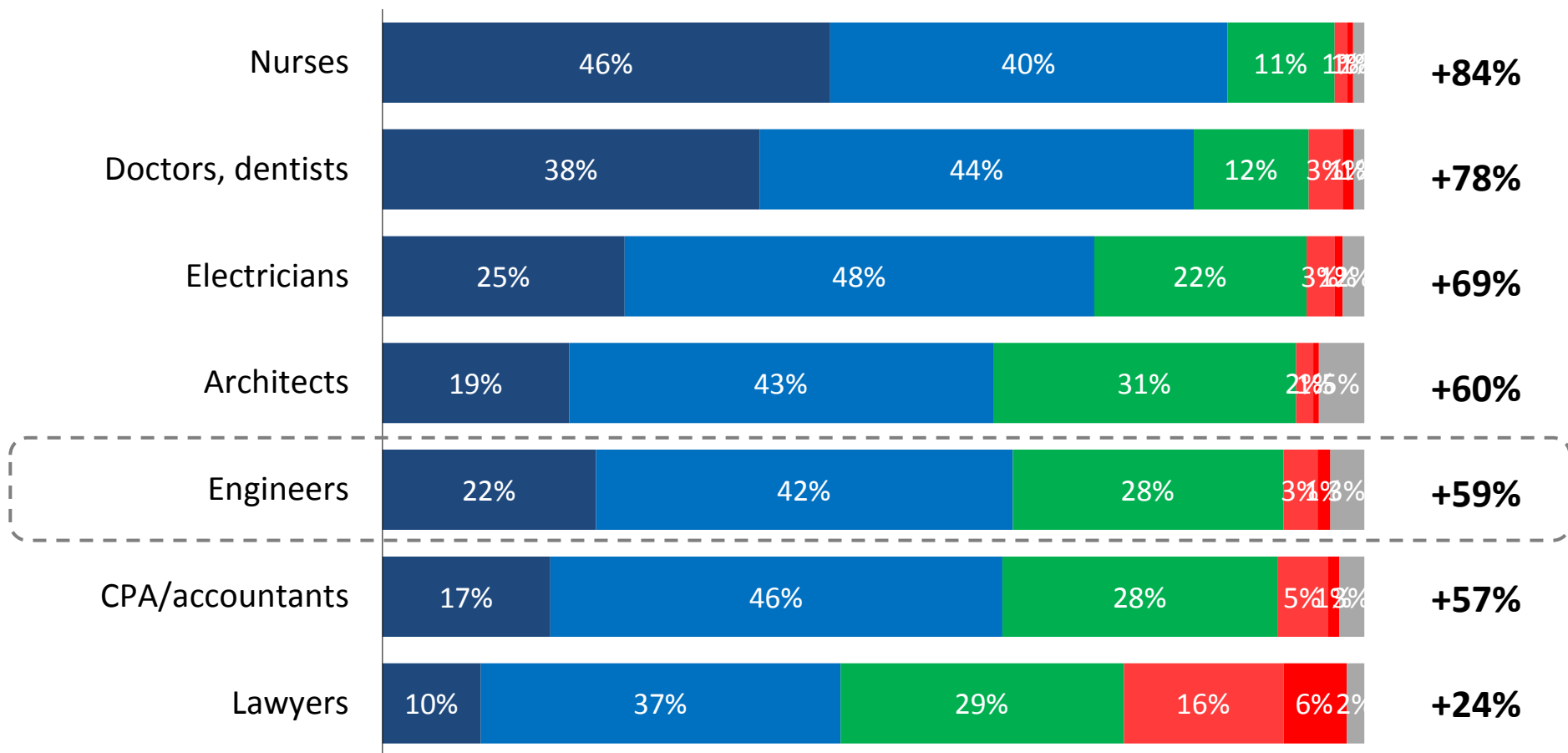
Trust: Engineers net trust ranks within the lower bracket; on par with architects and higher than CPA/accountants



How much do you **trust** each of the following?

[asked of all respondents; n=1,200]

Net Trust
(Trust) – (Distrust)



■ Completely trust

■ Somewhat trust

■ Neither trust nor distrust

■ Somewhat distrust

■ Completely distrust

■ Don't know

Trust by Familiarity: Those most familiar with engineers have a higher level of trust

Familiarity with Engineers

	Very familiar - First hand, from personal use/experience	Somewhat familiar - Second hand, from acquaintances, family etc.	Aware but not very familiar - Vague familiarity, general awareness	Not familiar - Not at all, heard name, but don't much about them	Total	
Trust of Engineers	Completely trust	45%	24%	17%	9%	22%
	Somewhat trust	39%	52%	43%	28%	42%
	Neither trust nor distrust	12%	20%	33%	45%	27%
	Somewhat distrust	4%	2%	4%	5%	3%
	Completely distrust	0%	1%	1%	4%	1%

83%

Of respondents who are familiar with engineers also *trust* the profession.

Trust by Familiarity

		“Net” Trust	Very familiar – First hand, from personal use/experience	Somewhat familiar – Second hand, from acquaintances, family, etc.	Aware but not very familiar – Vague familiarity, general awareness	Not familiar – Not at all, heard name, but don’t know much about them	Total
Profession	Nurses		89%	88%	76%	51%	84%
	Doctors, dentists		82%	81%	70%	54%	78%
	Electricians		82%	74%	62%	35%	69%
	Lawyers		32%	27%	17%	1%	24%
	CPA/accountants		77%	65%	49%	22%	57%
	Engineers		79%	74%	54%	28%	59%
	Architects		71%	74%	60%	38%	60%

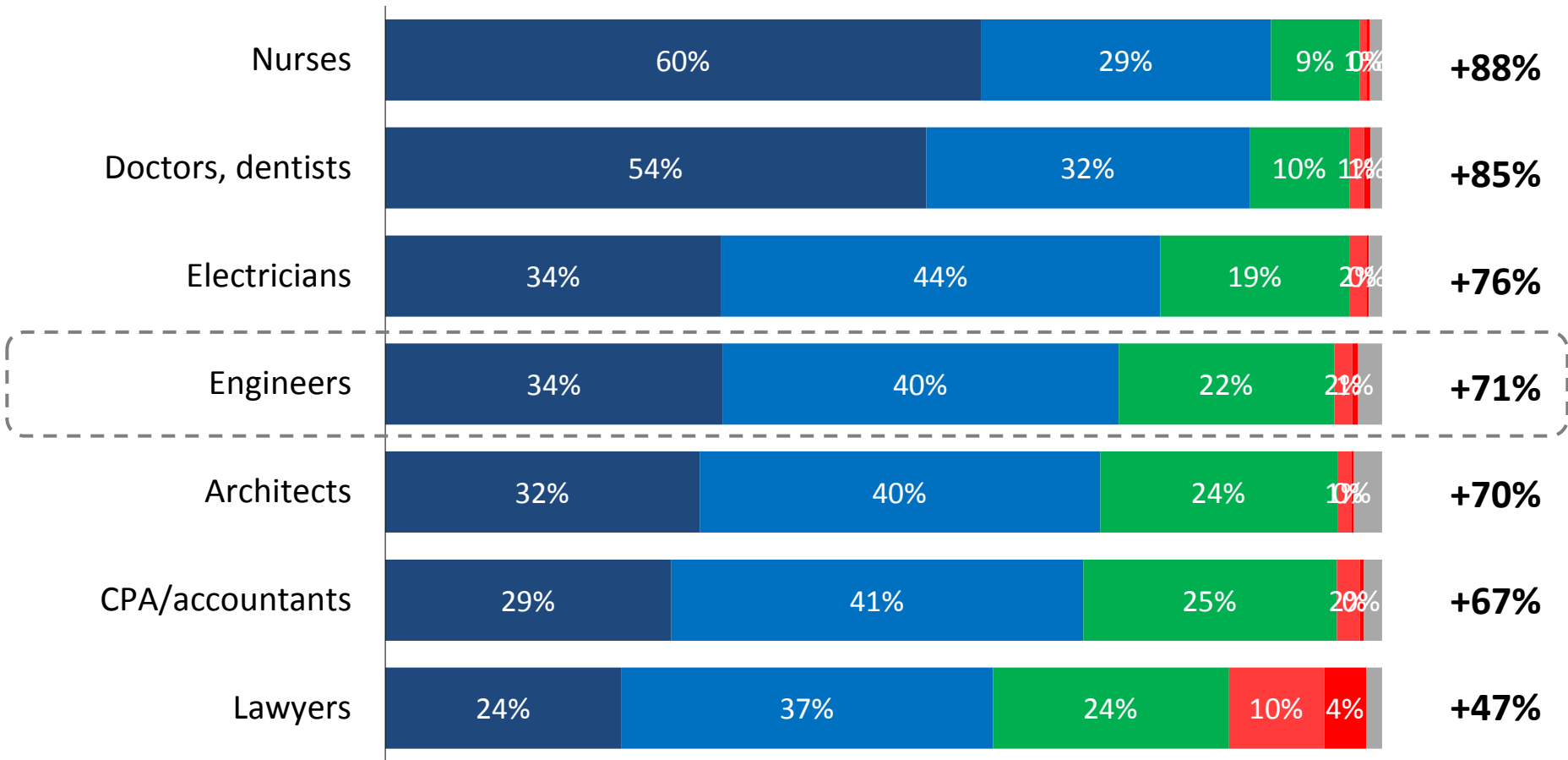
Respect: Engineers receive a medial net respect score; 3-in-4 respondents respect engineers at least somewhat ¹⁴



How much do you **respect** each of the following?

[asked of all respondents; n=1,200]

Net Respect
(Respect) – (Don't respect)



- Completely respect
- Somewhat respect
- Neither respect nor don't respect
- Somewhat don't respect
- Completely don't respect
- Don't know

Respect by Familiarity: Those most familiar with engineers have a higher level of respect for engineers

Familiarity with Engineers

	Very familiar - First hand, from personal use/experience	Somewhat familiar - Second hand, from acquaintances, family etc.	Aware but not very familiar - Vague familiarity, general awareness	Not familiar - Not at all, heard name, but don't much about them	Total	
Respect for Engineers	Completely respect	52%	36%	32%	22%	34%
	Somewhat respect	34%	44%	41%	34%	40%
	Neither respect nor don't respect	15%	18%	23%	36%	22%
	Somewhat don't respect	0%	1%	2%	4%	2%
	Completely don't respect	0%	0%	1%	1%	1%

85%

Of respondents who are familiar with engineers also *respect* the profession.

Net Impression, Trust and Respect by Region

<i>"Net Scores"</i>	British Columbia	Alberta	Prairies	Ontario	Quebec	Atlantic	Total
Overall Impression	63%	59%	66%	61%	52%	60%	59%
Trust	66%	64%	59%	61%	52%	57%	59%
Respect	67%	74%	69%	75%	68%	71%	71%

Respect by Familiarity

		“Net” Respect	Very familiar – First hand, from personal use/experience	Somewhat familiar – Second hand, from acquaintances, family, etc.	Aware but not very familiar – Vague familiarity, general awareness	Not familiar – Not at all, heard name, but don’t know much about them	Total
Profession	Nurses		92%	91%	82%	66%	88%
	Doctors, dentists		90%	85%	77%	56%	85%
	Electricians		86%	78%	72%	63%	76%
	Lawyers		50%	53%	44%	26%	47%
	CPA/accountants		81%	75%	62%	43%	67%
	Engineers		85%	79%	70%	51%	71%
	Architects		79%	79%	72%	55%	70%

Definition



engineerscanada
ingénieurscanada



INNOVATIVE
RESEARCH GROUP

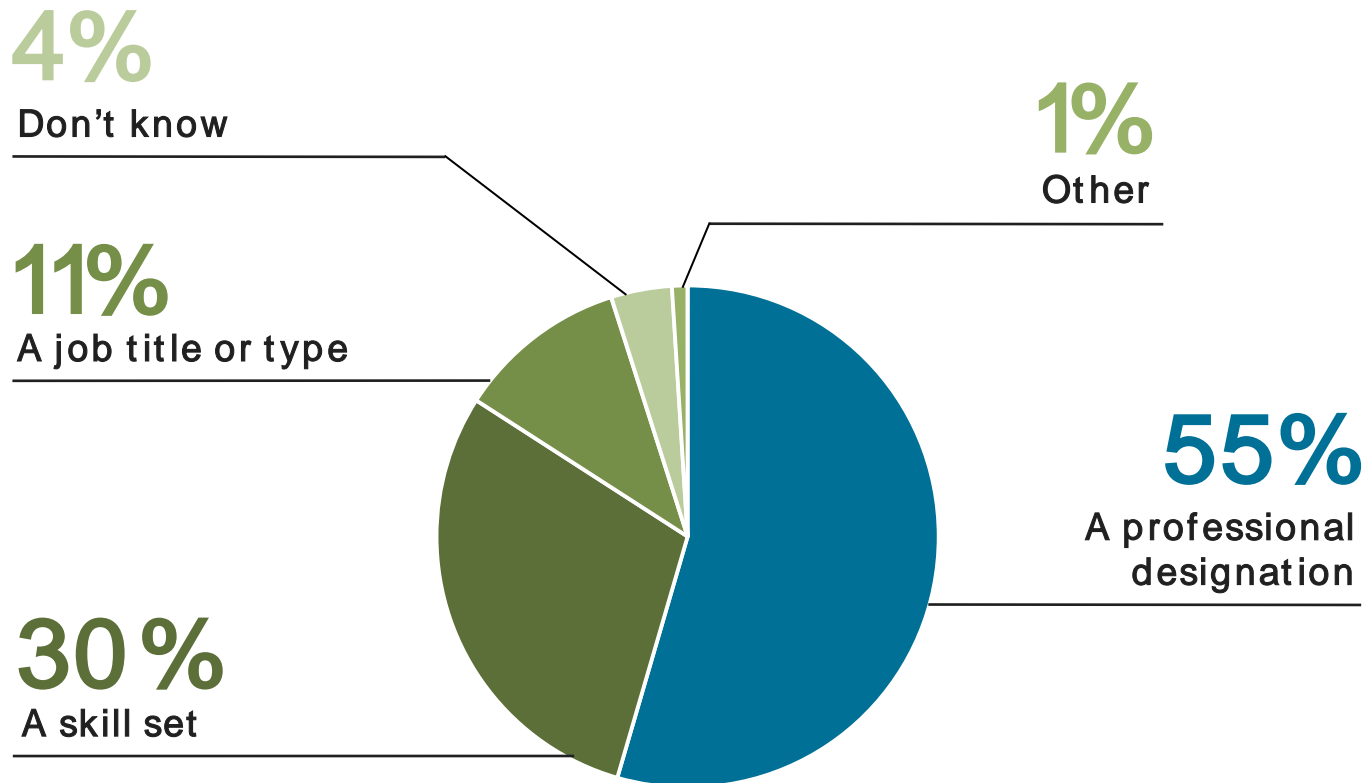
Definition: More than half (55%) define the term “engineer” as a professional designation; 30% define it as a skill set



Which of the following is closest to how you would describe engineers?

Choose the option that best describes what the term “engineer” means to you, even though others may also apply.

[asked of all respondents; n=1,200]



Definition of Engineers by Region: Albertans most likely to define engineers as professionals; lowest in Prairies

Q Which of the following is closest to how you would describe engineers?

Choose the option that best describes what the term “engineer” means to you, even though others may also apply.

[asked of all respondents; n=1,200]

DEFINITION OF ENGINEERS	British Columbia	Alberta	Prairies	Ontario	Quebec	Atlantic	Total
A professional designation	52%	67%	46%	58%	49%	50%	55%
A skills set	32%	15%	32%	29%	35%	27%	30%
A job title or type	11%	17%	11%	8%	10%	18%	11%
Don't know	5%	2%	7%	3%	5%	3%	4%



Functional Attributes

Functional Attributes: Technically proficient and demanding are top attributes; physically demanding describes least well

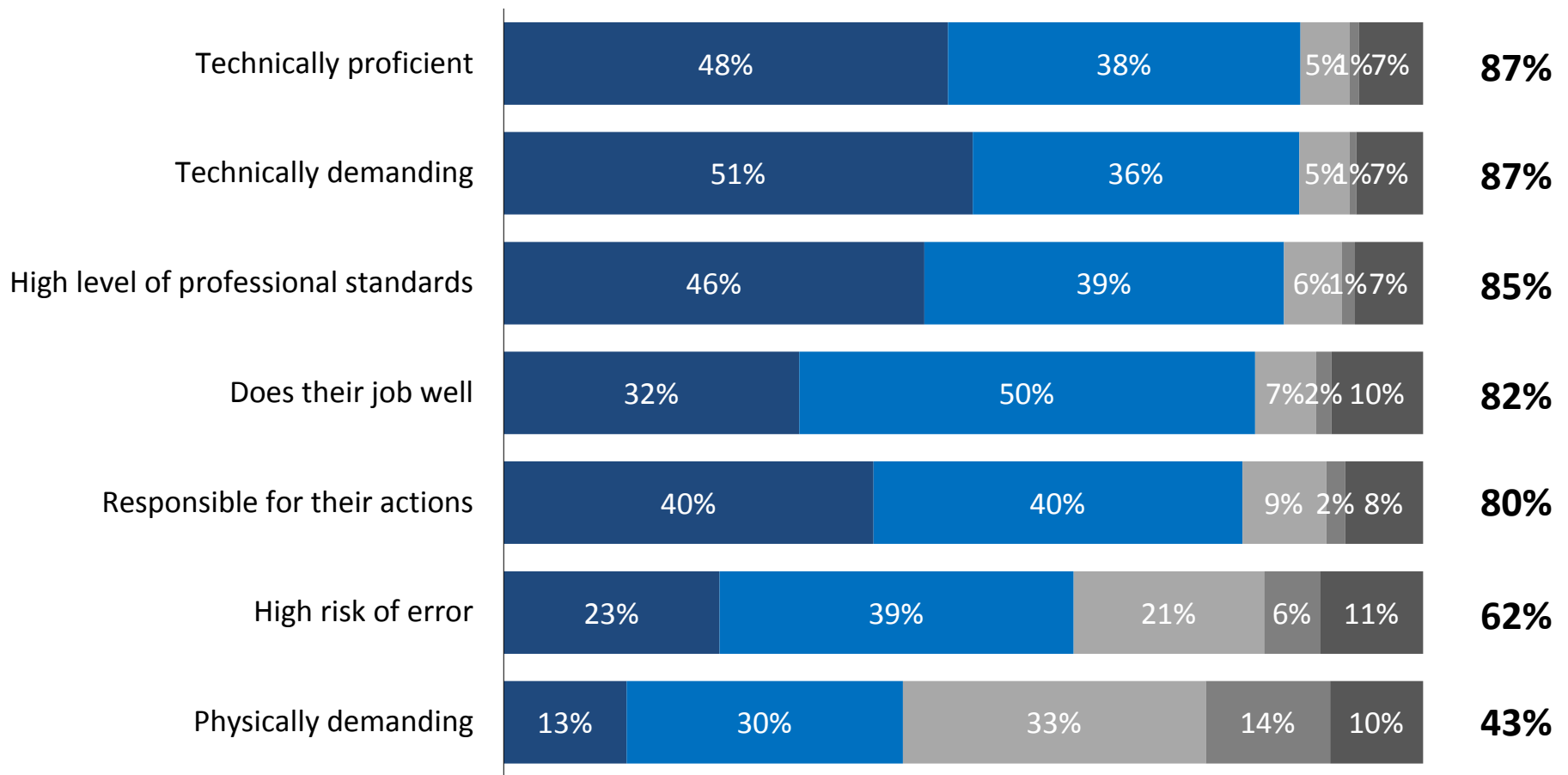


These next few sections will focus primarily on engineers and engineering.

How well do the following attributes **describe engineers?**


[asked of all respondents; n=1,200]

Describes well
(Very + Somewhat)



■ Describes engineers very well
 ■ Describes engineers somewhat well
■ Doesn't describe engineers very well
 ■ Doesn't describe engineers at all
■ Don't know

Functional Attributes by Region: Rankings in Quebec on positive attributes are lower than total; negative attributes are ranked higher

 These next few sections will focus primarily on engineers and engineering.
 How well do the following attributes **describe engineers**?
 [asked of all respondents; n=1,200]

Legend
 Green – Above Total
 Blue – Below Total
 Gray – Equal to Total

“Net” Describes Engineers Well	British Columbia	Alberta	Prairies	Ontario	Quebec	Atlantic	Total
Technically proficient	84%	81%	69%	82%	78%	83%	80%
Technically demanding	84%	84%	75%	82%	75%	81%	80%
High level of professional standards	79%	79%	79%	81%	66%	82%	77%
Does their job well	74%	71%	69%	79%	67%	71%	73%
Responsible for their actions	69%	70%	72%	73%	64%	64%	69%
High risk of error	33%	32%	31%	35%	41%	28%	35%
Physically demanding	-4%	-19%	0%	2%	-12%	21%	-3%



Reputational Attributes

Reputational Attributes: high level of expertise is the top attribute; involved in communities describes least well

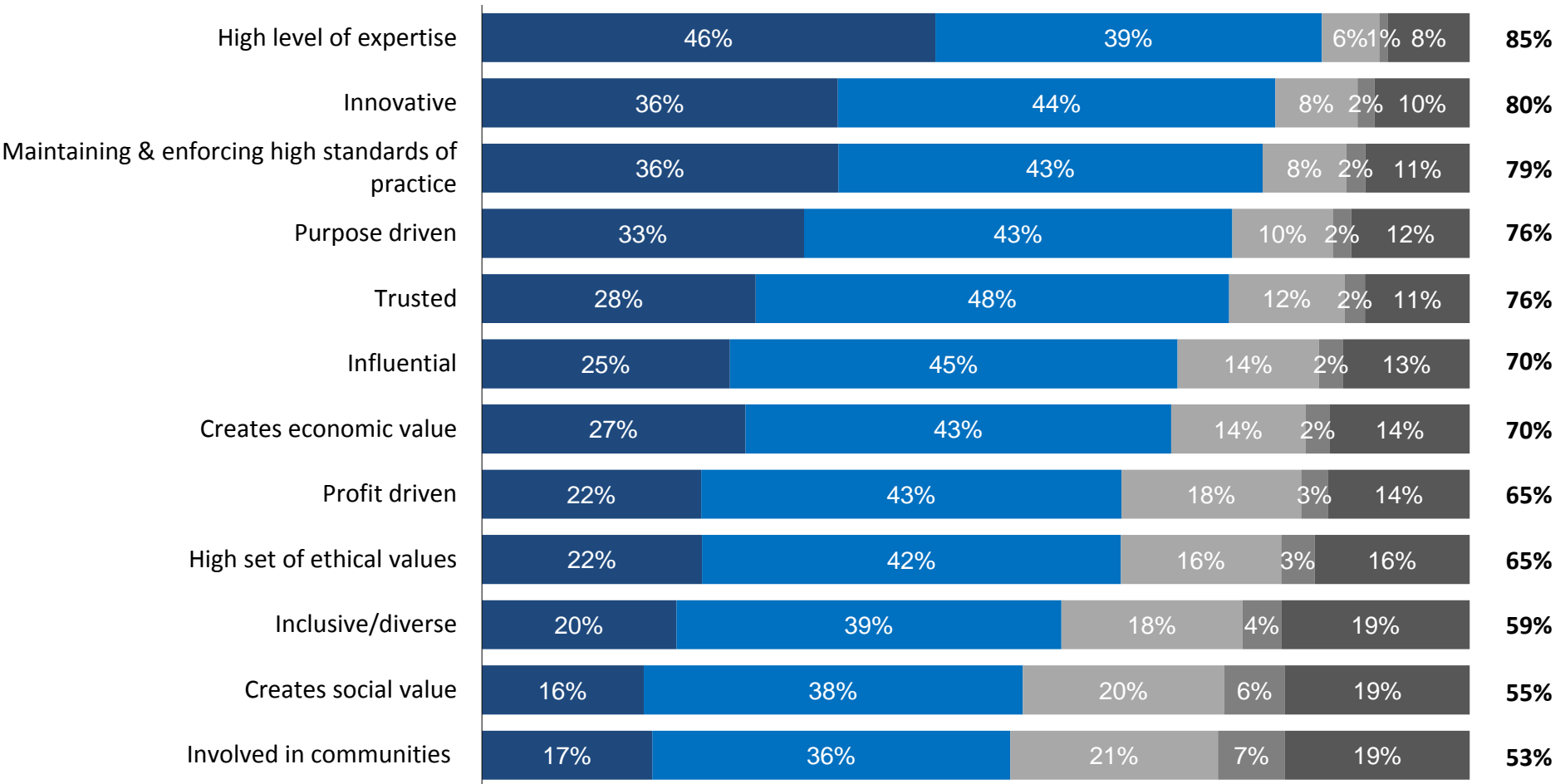


How would you rate engineers on each of the following attributes?

[asked of all respondents; n=1,200]

Describes well

(Very + Somewhat)

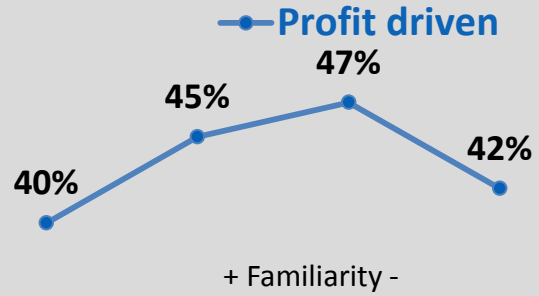


■ Describes engineers very well
 ■ Describes engineers somewhat well
 ■ Doesn't describe engineers very well
■ Doesn't describe engineers at all
 ■ Don't know


Reputational Attributes by Familiarity: For the majority, an increase in familiarity leads to an increase in ratings

“Net” Describes Engineers Well	Very familiar	Somewhat familiar	Aware but not very familiar	Not familiar
Trusted	72%	71%	62%	42%
High set of ethical values	61%	53%	41%	36%
Inclusive/diverse	42%	39%	39%	22%
Creates social value	44%	30%	25%	26%
Creates economic value	63%	60%	54%	41%
High level of expertise	87%	85%	78%	66%
Maintaining & enforcing high standards of practice	80%	76%	71%	52%
Influential	60%	59%	55%	42%
Profit driven	40%	45%	47%	42%
Purpose driven	73%	70%	65%	48%
Innovative	73%	78%	72%	57%
Involved in communities	38%	36%	19%	14%

The ‘Profit driven’ attribute *does not* follow the trend experienced by the majority. *Those who are ‘very familiar’ are less likely to say engineers are profit driven.*



Reputational Attributes by Region: Quebec region reports lowest score on trusted attribute & highest on profit driven

 These next few sections will focus primarily on engineers and engineering.
 How well do the following attributes **describe engineers**?
 [asked of all respondents; n=1,200]

Legend
 Green – Above Total
 Blue – Below Total
 Gray – Equal to Total

“Net” Describes Engineers Well	British Columbia	Alberta	Prairies	Ontario	Quebec	Atlantic	Total
Trusted	65%	63%	64%	70%	48%	58%	62%
High set of ethical values	50%	38%	34%	55%	27%	61%	45%
Inclusive/diverse	31%	30%	27%	39%	42%	33%	36%
Creates social value	22%	32%	26%	34%	20%	34%	28%
Creates economic value	53%	58%	50%	60%	41%	60%	54%
High level of expertise	80%	83%	72%	82%	71%	81%	78%
Maintaining & enforcing high standards of practice	68%	73%	62%	72%	61%	74%	69%
Influential	52%	51%	54%	56%	50%	61%	54%
Profit driven	37%	48%	40%	39%	53%	49%	44%
Purpose driven	65%	67%	61%	69%	55%	61%	64%
Innovative	70%	73%	56%	75%	65%	70%	70%
Involved in communities	38%	36%	25%	33%	3%	28%	26%



Personification



Photo courtesy of Angela McEwen and is made available through EngStudio, a service of Engineers Canada.

Personification: Engineers strongly seen as modern, open to new ideas and interesting; less so down to earth and friendly



For each of the following pairs of attributes, if you were describing engineers to a friend, which of the following best describes **engineers** as people?

[asked of all respondents; n=1,200]

ENGINEERS



Personification by Familiarity

	Personification Attribute	Very familiar – First hand, from personal use/experience	Somewhat familiar – Second hand, from acquaintances, family, etc.	Aware but not very familiar – Vague familiarity, general awareness	Not familiar – Not at all, heard name, but don't know much about them	Total
✓	Not like me	47%	57%	69%	73%	63%
✗	Like me	53%	43%	31%	27%	37%
✓	Open to new ideas	80%	76%	83%	76%	79%
✗	Resists change	20%	24%	17%	24%	21%
✓	Analytical	66%	66%	64%	53%	63%
✗	Creative	34%	34%	36%	47%	37%
✓	Direct	61%	59%	65%	62%	62%
✗	Polite	39%	41%	35%	38%	38%
✓	Socially astute	56%	62%	61%	66%	62%
✗	Socially awkward	44%	38%	39%	34%	38%

Personification by Familiarity (Cont'd)

	Personification Attribute	Very familiar – First hand, from personal use/experience	Somewhat familiar – Second hand, from acquaintances, family, etc.	Aware but not very familiar – Vague familiarity, general awareness	Not familiar – Not at all, heard name, but don't know much about them	Total
✓	Modern	78%	82%	83%	83%	82%
✗	Old fashioned	22%	18%	17%	17%	18%
✓	Smarter	74%	75%	74%	69%	72%
✗	Average	26%	25%	26%	31%	28%
✓	Down to earth	56%	56%	50%	57%	54%
✗	Elite	44%	44%	50%	43%	46%
✓	Interesting	79%	82%	78%	74%	78%
✗	Boring	21%	18%	22%	26%	22%
✓	Friendly	64%	62%	55%	57%	59%
✗	Detached	36%	38%	45%	43%	41%



Career Choice



Photo courtesy of Stephanie Horner and is made available through EngStudio, a service of Engineers Canada.

Career Choice: Financially rewarding is the top attribute; for people like me describes least well

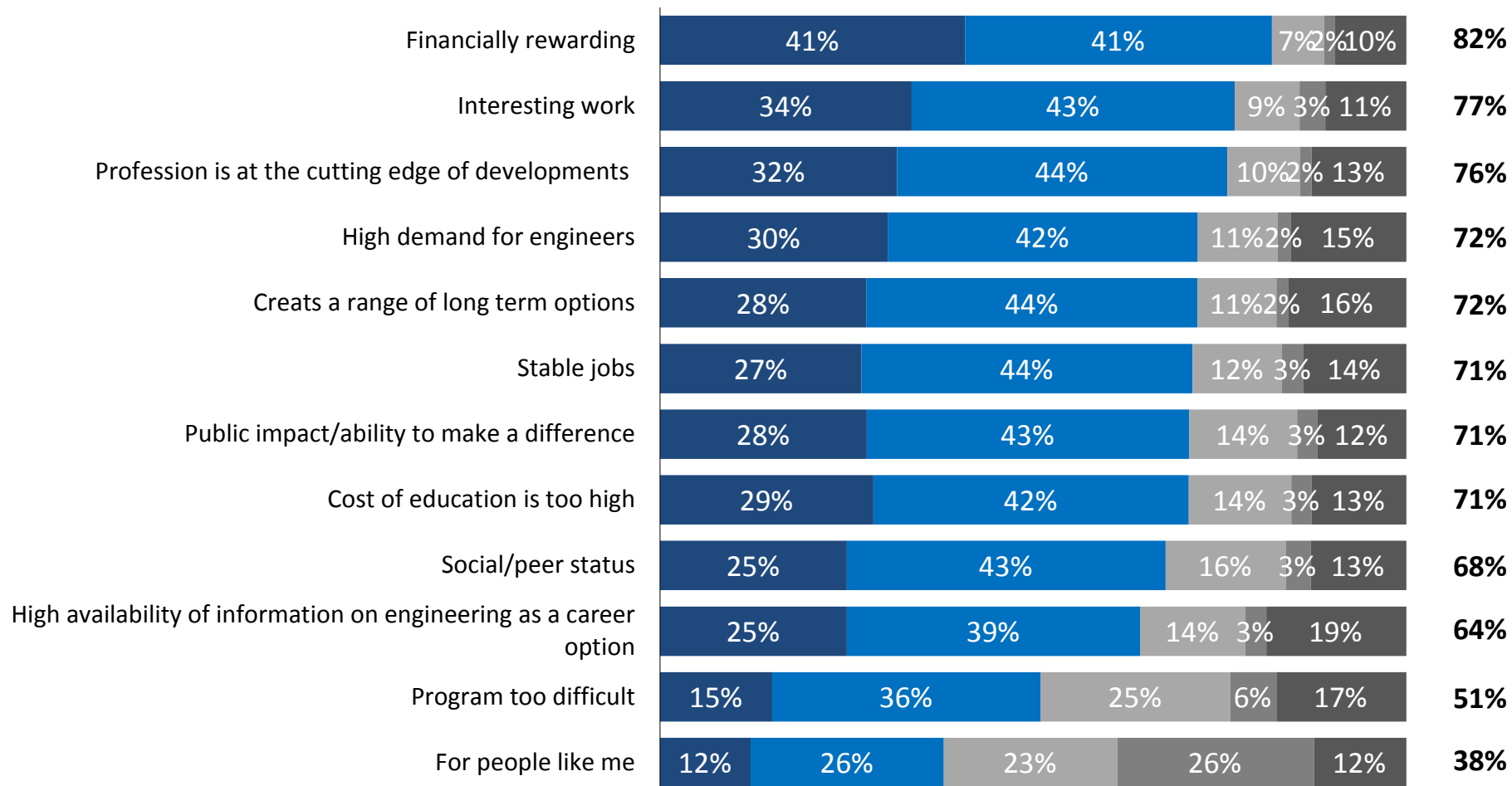


Please rank the following attributes as they relate to engineering as a potential career choice.

[asked of all respondents; n=1,200]

Describes well

(Very + Somewhat)



■ Describes the professional very well
 ■ Doesn't describe the profession very well
 ■ Don't know

■ Describes the profession somewhat well
 ■ Doesn't describe the profession at all



Outcome Risks and Social Values

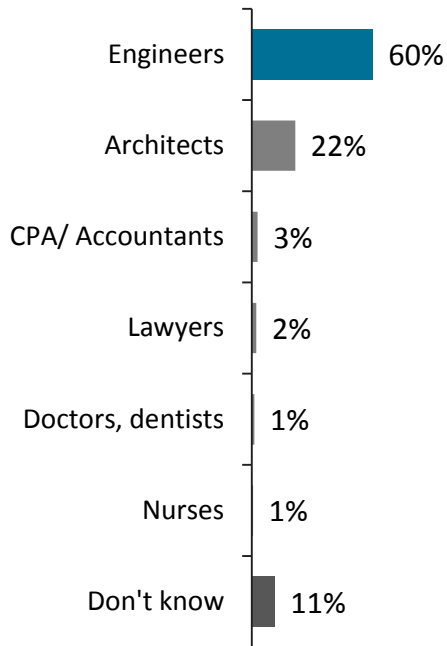
Role of Engineers: Top four most suited areas



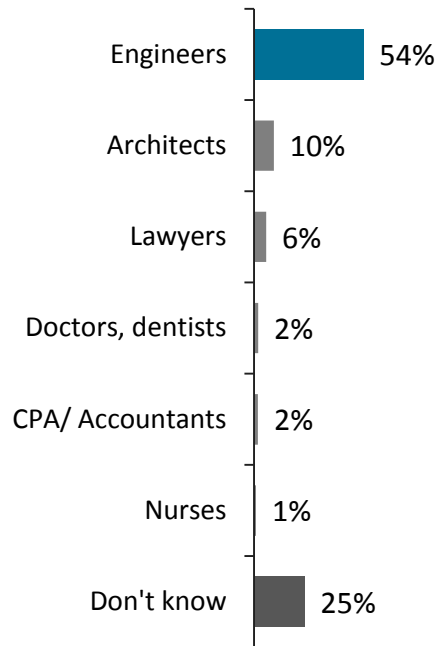
In terms of the impact on Canadians' lives, which profession is **most suited** to play a role in the following areas?
Please select the profession that is most suited out of the list below.

[asked of all respondents; n=1,200]

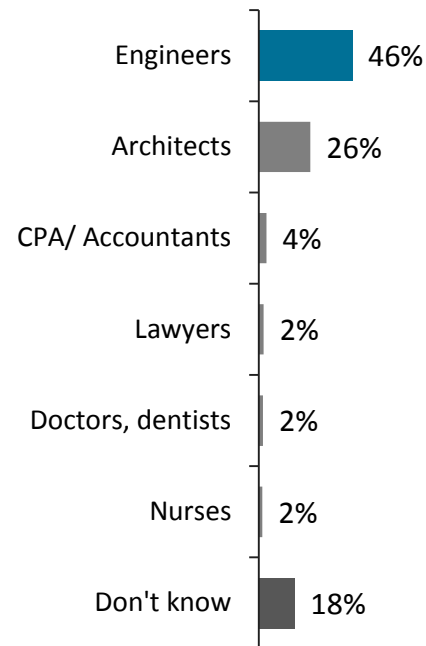
Solving infrastructure challenges



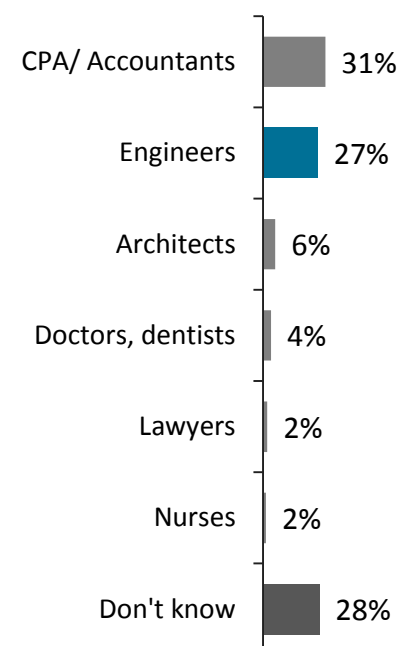
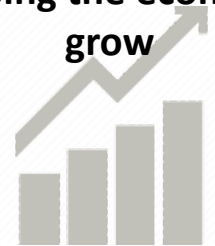
Solving environmental challenges



Inspiring innovations



Helping the economy grow



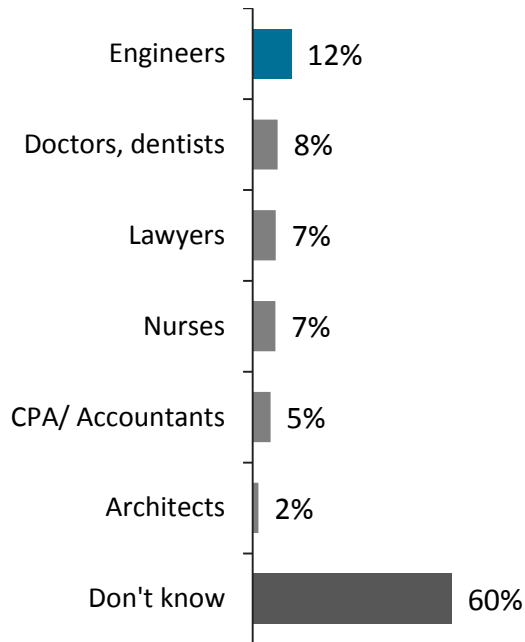
Role of Engineers: Bottom three most suited areas



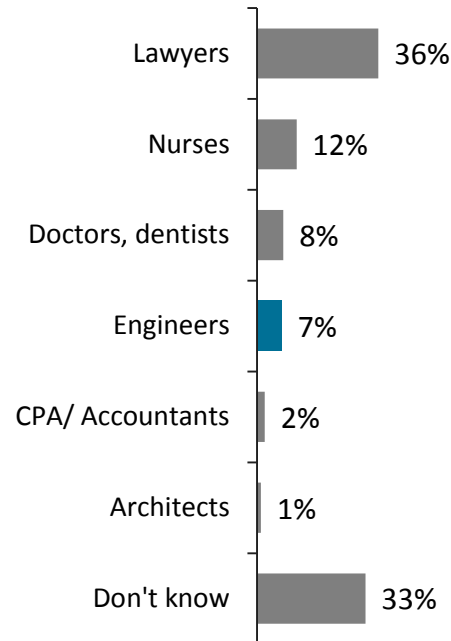
In terms of the impact on Canadians' lives, which profession is **most suited** to play a role in the following areas?
Please select the profession that is most suited out of the list below.

[asked of all respondents; n=1,200]

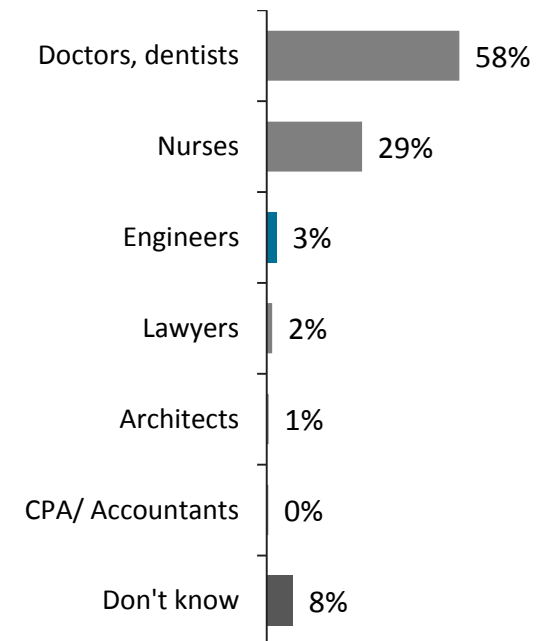
Improving education



Addressing social issues



Improving healthcare



Impact of Engineers by Region and Age/Gender

	Total	BC	AB	Prairies	ON	QC	Atlantic	M 18-34	M 35-54	M 55+	F 18-34	F 35-54	F 55+
Addressing social issues	7%	8%	8%	13%	7%	6%	7%	13%	6%	6%	6%	8%	7%
Inspiring innovations	46%	41%	47%	36%	50%	48%	41%	49%	46%	46%	50%	50%	37%
Improving education	12%	13%	15%	14%	12%	8%	12%	16%	16%	10%	8%	10%	9%
Helping the economy grow	27%	29%	34%	25%	29%	21%	28%	29%	26%	29%	25%	25%	28%
Improving health care	3%	3%	2%	4%	4%	1%	4%	8%	2%	2%	3%	2%	2%
Solving infrastructure challenges	60%	63%	56%	61%	61%	60%	55%	50%	63%	70%	45%	55%	71%
Solving environmental challenges	54%	48%	66%	59%	53%	51%	62%	54%	52%	64%	41%	53%	60%

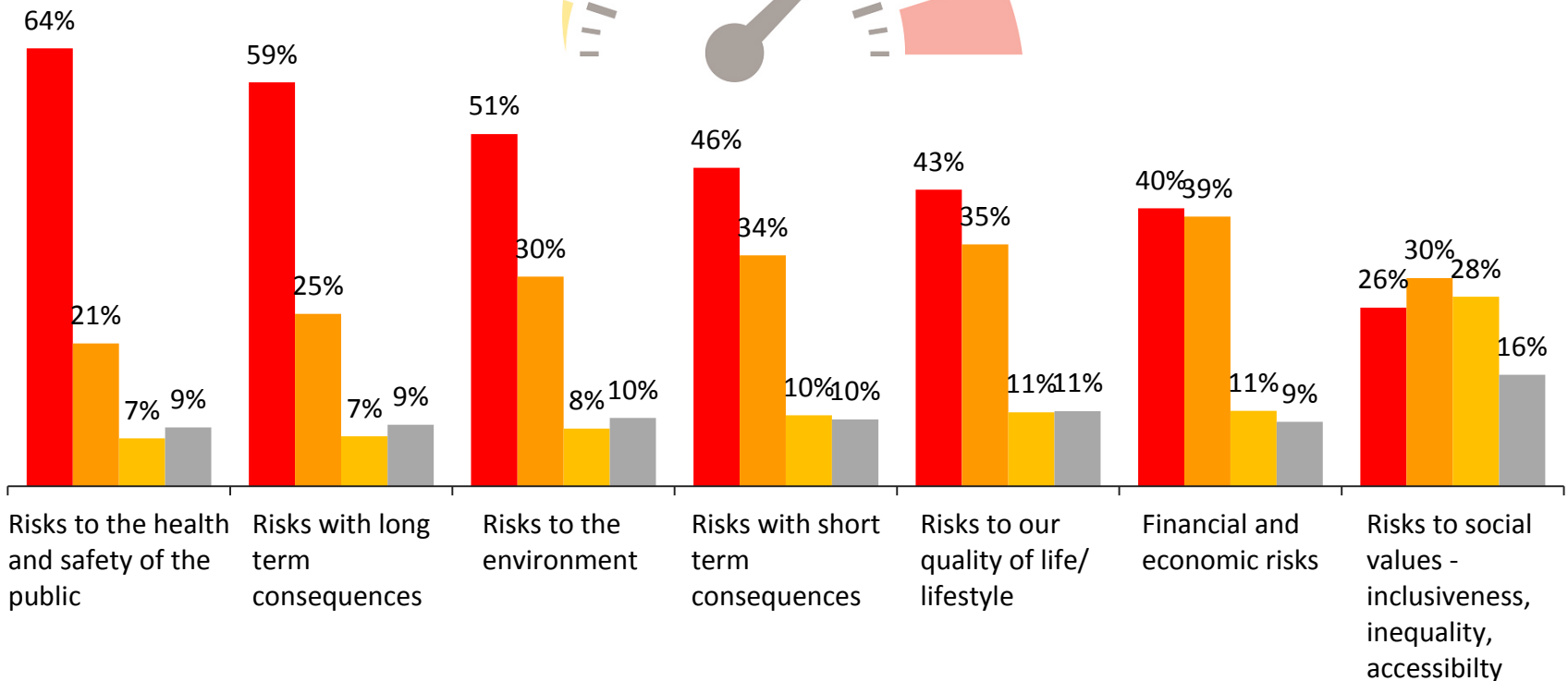
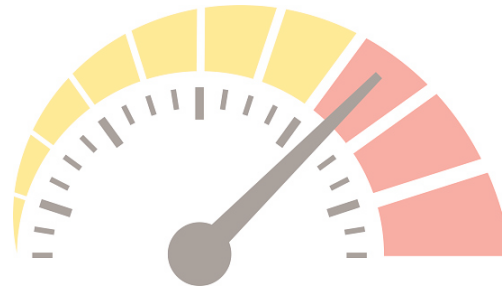
Majority of provinces exhibit conflicting perceptions on whether engineers are the most suited to play a role in solving environmental challenges.

Risks & Outcomes: Severity of consequence is highest regarding risks to the health and safety of the public



Thinking about the following risks, how would you rate the severity of the consequence if **engineers** did not do their job properly?

[asked of all respondents; n=1,200]



■ High severity

■ Medium severity

■ Low severity

■ Don't know

Risks & Outcomes: Severity of consequence is highest regarding risks to the health and safety of the public

<i>"High Severity"</i>	British Columbia	Alberta	Prairies	Ontario	Quebec	Atlantic	Total
Risks to the health and safety of the public	67%	64%	64%	60%	68%	61%	64%
Risks with long term consequences	61%	56%	61%	55%	66%	51%	59%
Risks to the environment	52%	53%	46%	47%	59%	48%	51%
Risks with short term consequences	49%	51%	42%	41%	53%	40%	46%
Risks to our quality of life/ lifestyle	42%	42%	51%	37%	55%	37%	43%
Financial and economic risks	42%	38%	37%	37%	48%	38%	40%
Risks to social values - inclusiveness, inequality, accessibility	30%	21%	29%	23%	30%	24%	26%

Quebec consistently higher than rest of Canada in terms of perceived severity of consequences

Key Takeaways

Familiarity with engineers and the engineering profession is relatively low.

- While more than 2-in-5 (45%) respondents are familiar with engineers, familiarity is low relative to the rest of the professions measured. Familiarity with the engineering profession is 30 points lower than nurses (45% engineers, compared to 77% nurses). Respondents are more familiar with engineers than they are with architects but less when it comes to CPA accountants.

Overall Impression, Trust, and Respect:

- In the majority of instances, as familiarity with engineers increases, levels of overall impression, trust, and respect also increase.
 - 82% of those who are familiar with engineers also hold favourable impressions of the profession.
 - 83% of those who are familiar with engineers also trust the profession.
 - 85% of those who are familiar with engineers also respect the profession.

Perceptions in Quebec:

Across the country, Quebec stands out as the province with lowest net favourability and trust scores. The province ranks engineers below the national total on all positive functional attributes and above on negative attributes.

Similar findings appear in regards to engineer rankings in reputational attributes; the Quebec region net scores for reputational attributes paints a dark picture of how the region perceives engineers.

- Involved in communities: 3% Quebec, down 23 points compared to 26% national total
- High set of ethical values: 27% Quebec, down 18 points compared to 45% national total
- Trust: 48% Quebec, down 14 points compared to 62% national total
- Profit driven: 53% Quebec, up 9 points compared to 44% national total
- Purpose driven: 55% Quebec, down 9 points compared to 64% national total

When asked to rate the severity of the consequence if engineers did not do their job properly, Quebec consistently scores higher than the rest of Canada in terms of perceived severity of consequences.



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