Summary of the results of Afnic's "Technology Backdrop Survey" - October 2012

Survey organized by Afnic's Scientific Council and run by INIT

Report by:

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This document summarizes the results of the 2012 edition of AFNIC's technology backdrop survey. By way of introduction sections 1-4, it recalls the background, objectives, structure and methodology of the survey. It then presents the main results of this survey, starting with the characteristics (profile) of the population of respondents in section 5. The results are reviewed in section 6, according to the level of agreement (consensus or divergence). Section 7 discusses further work for exploiting the survey results and for carrying out the future editions.

1.   Background and objectives of the survey

Background

  ✓ *End 2008 – Early 2011:*

The **Afnic Scientific Council (SC)** asked the question: "Is it possible to have a shared vision of technology trends in the medium to long term?"

ICT users and professionals were invited to respond to an online survey

The 1st edition of the survey's results was published in 2011:

http://www.slideshare.net/AFNIC/resultats-toiledefondtechafnic-6786477

  ✓ *2012 (May – June):*

  The 2nd edition was overseen by the **Afnic SC** in conjunction with **INIT** :

http://www.afnic.fr/fr/l-afnic-en-bref/actualites/actualites-generales/5979/show/lancement-de-la-2eme-edition-de-l-enquete-toile-de-fond-technologique-afnic.html

Goals

  ✓ *Construct a technological backdrop:*

The basis of the backdrop consists of consensuses.

Divergent assertions (forming two "schools of thought") are used to integrate alternative scenarios into the backdrop

  ✓ *Monitor changes in the backdrop by periodically renewing the survey (objectives are updated).*

2. Respondents : numbers and profiles

198 respondents took part in this survey. Their profile is distributed as follows:
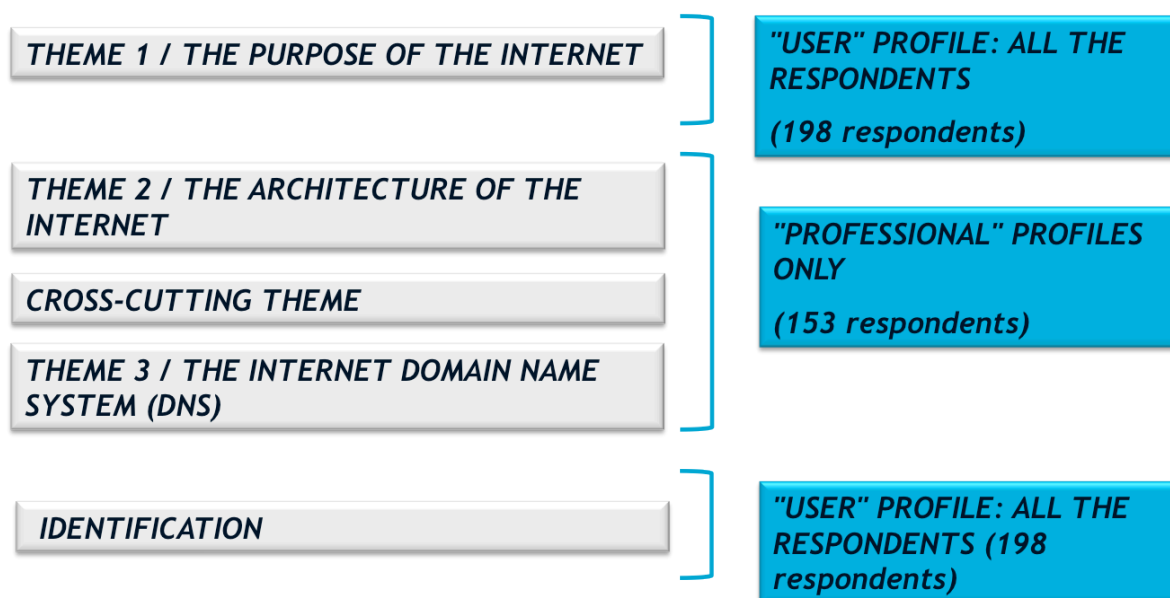
Internet "Professionals":

- ✓ *Respondents working in the ICT field*
- ✓ *153 respondents this profile (77%)*

Internet "Users"-only:

- ✓ *Simple Internet users, not working in the ICT field*
- ✓ *45 respondents this profile (23%)*
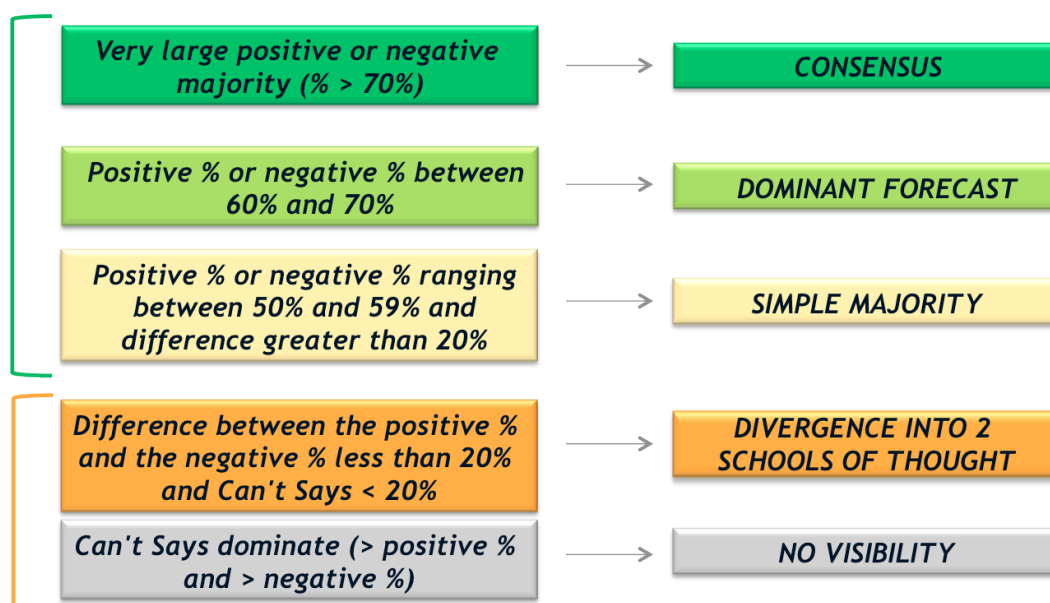
3. The questionnaire themes

The questionnaire focused on four themes, including a transversal one as well identification questions at the end.

THEME 1 / THE PURPOSE OF THE INTERNET	**"USER" PROFILE: ALL THE RESPONDENTS** *(198 respondents)*
THEME 2 / THE ARCHITECTURE OF THE INTERNET	**"PROFESSIONAL" PROFILES ONLY** *(153 respondents)*
CROSS-CUTTING THEME	
THEME 3 / THE INTERNET DOMAIN NAME SYSTEM (DNS)	
IDENTIFICATION	**"USER" PROFILE: ALL THE RESPONDENTS (198 respondents)**

N.B. The Internet "Professionals" answered the parts of the survey which only targeted Internet "Users" (ex: THEME 1), but as simple users.
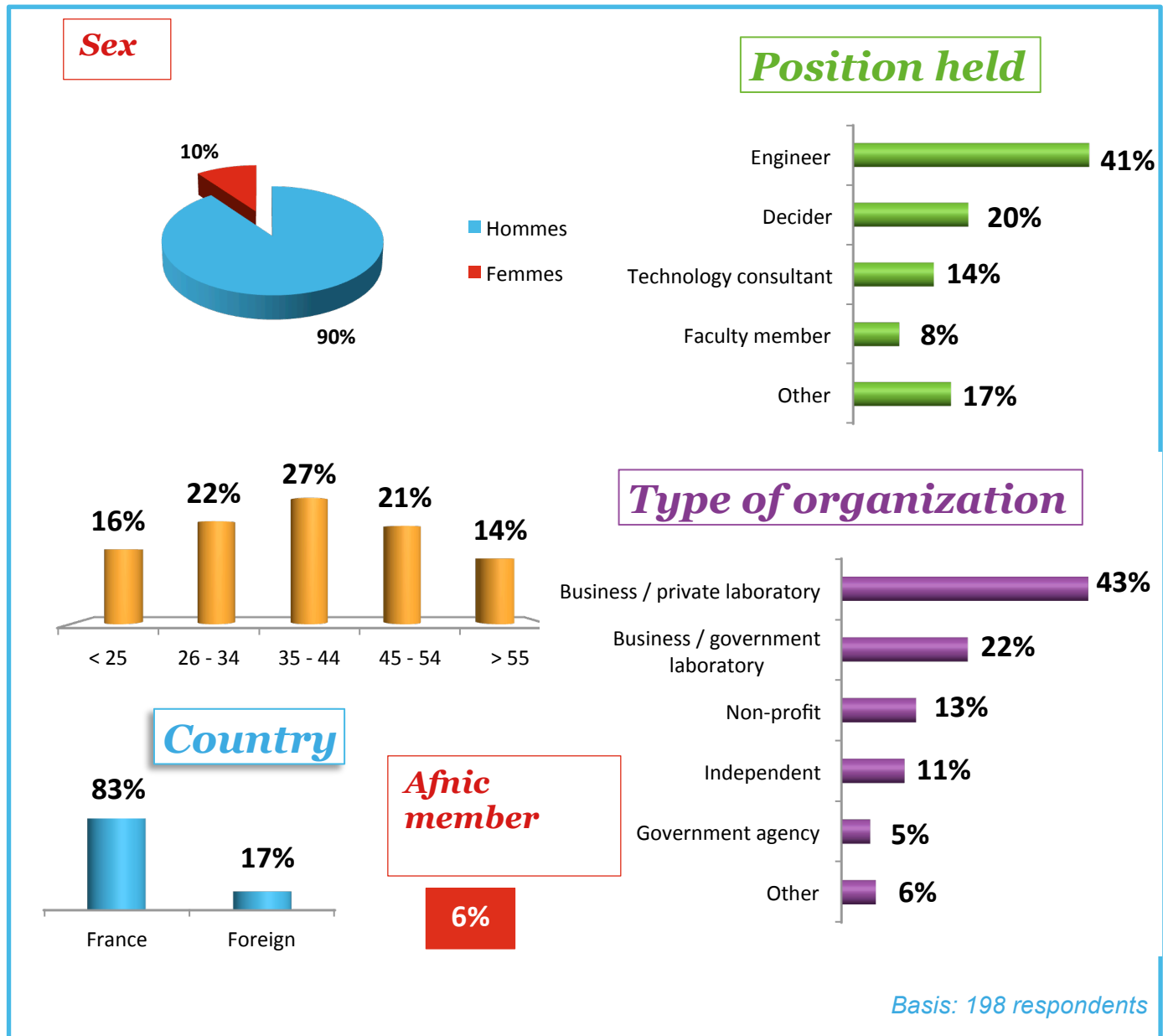
4. *Methodology*

✓ *The questions asked require answers on the following scale:*

  ✓ *Strongly agree (positive)*
  ✓ *Tend to agree (positive)*
  ✓ *Tend to disagree (negative)*
  ✓ *Strongly disagree (negative)*
  ✓ *Can't say*

✓ *The call for participation was issued by AFNIC to contacts by electronic means (e-mail, Twitter, etc.)*

✓ *The respondents were invited to transfer the invitation to their acquaintances.*

✓ *Thresholds have been set to determine if there is a (more or less strong) consensus or rather a divergence (two forms) among respondents on the questions (assertions). These thresholds are based on percentages of positive and/or negative orientation of responses, according to the four-level scale of categories above (Strongly agree ... Strongly disagree):*

Very large positive or negative majority (% > 70%)	→ **CONSENSUS**
Positive % or negative % between 60% and 70%	→ **DOMINANT FORECAST**
Positive % or negative % ranging between 50% and 59% and difference greater than 20%	→ **SIMPLE MAJORITY**
Difference between the positive % and the negative % less than 20% and Can't Says < 20%	→ **DIVERGENCE INTO 2 SCHOOLS OF THOUGHT**
Can't Says dominate (> positive % and > negative %)	→ **NO VISIBILITY**

5. Profile of Respondents

Here is a graphical summary of the characteristics of the population of respondents:

Sex

- 10%
- 90%
- Hommes
- Femmes

Position held

Engineer	41%
Decider	20%
Technology consultant	14%
Faculty member	8%
Other	17%

Age distribution:

< 25	26 - 34	35 - 44	45 - 54	> 55
16%	22%	27%	21%	14%

Type of organization

Business / private laboratory	43%
Business / government laboratory	22%
Non-profit	13%
Independent	11%
Government agency	5%
Other	6%

Country

France	Foreign
83%	17%

Afnic member

6%

Basis: 198 respondents

6.   *Summary of the survey results*

6.1   INTERNET USE

This is the first theme of the questionnaire, to which responded the entire population (198 respondents), with the "User" profile.

Internet access: the current view of respondents and for the next 10 years

- ✓ *The use of desktops and laptops is currently dominant. But it will decrease in favor of other media (tablets, smartphones, TV, etc.)*

  - ✓ *At the professional level and in private life.*
  - ✓ *This decrease will not be sharp ("evolution" not "revolution")*

Internet use and content: the current vision of the respondents and for the next 10 years

- ✓ *Consultation of content on the Internet is predominant compared with other uses (both professional and private) but will decrease for the next 10 years.*

- ✓ *On the other hand, exchanges on the Internet are already widely used and will increase for the next 10 years.*

- ✓ *Greater use is made of "Machine to Machine" operations for professional purposes and this will increase.*

Data storage: the current vision of the respondents and for the next 10 years

- ✓ *Currently for professional uses, data storage is mainly taken care of by employers. This storage system will decrease but will remain the system used by most people over the next 10 years. The share of data storage media provided by a third parties or of data fully managed by third parties will increase.*

- ✓ *The same phenomenon can be observed in private life.*

  This vision of the Internet for the next 10 years is fairly "conservative".

  It is not a real revolution but a significant change with the erosion of certain practices.

6.2   CONSENSUSES

Based on the threshold set (on 70% positive percentage), this part contains the assertions (themes 2, 3 and transverse) on which a consensus was reached among respondents (only "professional" profile).

The forecasts for the next 10 years lead to a consensus on the following points:

- ✓ *"The Internet will still be the dominant electronic communications network"*

- ✓ *"The infrastructure of the Internet will continue to evolve to handle the traffic for all applications and services"*

- ✓ *"The DNS will remain the dominant Internet naming and resolution system"*

- ✓ *"The Internet of Things will have emerged one way or another"*

- ✓ *"The use of personal data from user DNS queries will be generalized by DNS resolver operators (ISPs and alternative providers)"*

- ✓ *"The geographical location of your data will have a major impact on your sense of security"*

- ✓ *"The geographical or topological position in the network will significantly affect (in more than 1 case out of 10) the answers to DNS resolution queries"*

6.3   DIVERGENCES

Based on the thresholds set (see section 4), this section discusses divergences.

The forecasts for the next 10 years lead to a divergence into two schools of thought on the following points: (excluding filtered criteria)

- ✓ *"In the case of DNS requests assigned to a third party (ISPs or suppliers of alternative solvers), the use of alternative solvers will exceed the use of one's own ISP resolver"*

- ✓ *"Local DNS resolvers (caches installed on user machines) will play a significant role (25% or more) compared with ISP resolvers or "open" resolvers of the Google DNS type"*

- ✓ *"The deployment of IPv6 will gradually result in the disappearance of Network Address Translation boxes"*

- ✓ *"Office suites (provided as services on the Internet) will eventually completely replace traditional office suites (software installed locally on the user's machine)"*

- ✓ *"The different types of access to wireless Internet (3G, wifi hotspots, etc.) will be neutral in the sense that these access systems let through all the traffic exchanged without judging its nature"*

- ✓ *"Cloud computing will fundamentally change Internet protocols and services"*

6.4   DOMINANT FORECASTS

Based on the thresholds set (see section 4), this section deals with "Dominant forecasts", but not dominant enough to reach a consensus (as defined by corresponding threshold).

Forecasts for the next 10 years lead to a "dominant forecast" on the following points:

- ✓ *"The routing protocols and algorithms used in today's Internet will withstand the growth of the Internet"*

- ✓ *"The DNS will be more secure than it is today"*

- ✓ *"In 10 years' time, the Internet name space will be globally governed by a single root (the DNS root)"*

- ✓ *"In 10 years' time, security mechanisms for routing on the Internet (e.g. RPKI) will be adopted and implemented worldwide"*

- ✓ *"NATs will continue to be used for other things regardless of the level of IPv6 deployment"*

- ✓ *"The different types of wired Internet access (DSL, fiber, etc.) will be neutral in the sense that these access systems let through all the traffic exchanged without judging its nature"*

7.   Outlooks

The next edition of the survey will allow us to:

- ✓ *Monitor important trends and developments in the backdrop.*

- ✓ *Show through concrete examples how that backdrop is used*

- ✓ *Enrich the questionnaire with additional questions.*

- ✓ *Improve the recruitment campaign in order to have a large number of respondents (why not 500+ respondents!?)*