Net cost of La Poste's network development

WIK conference

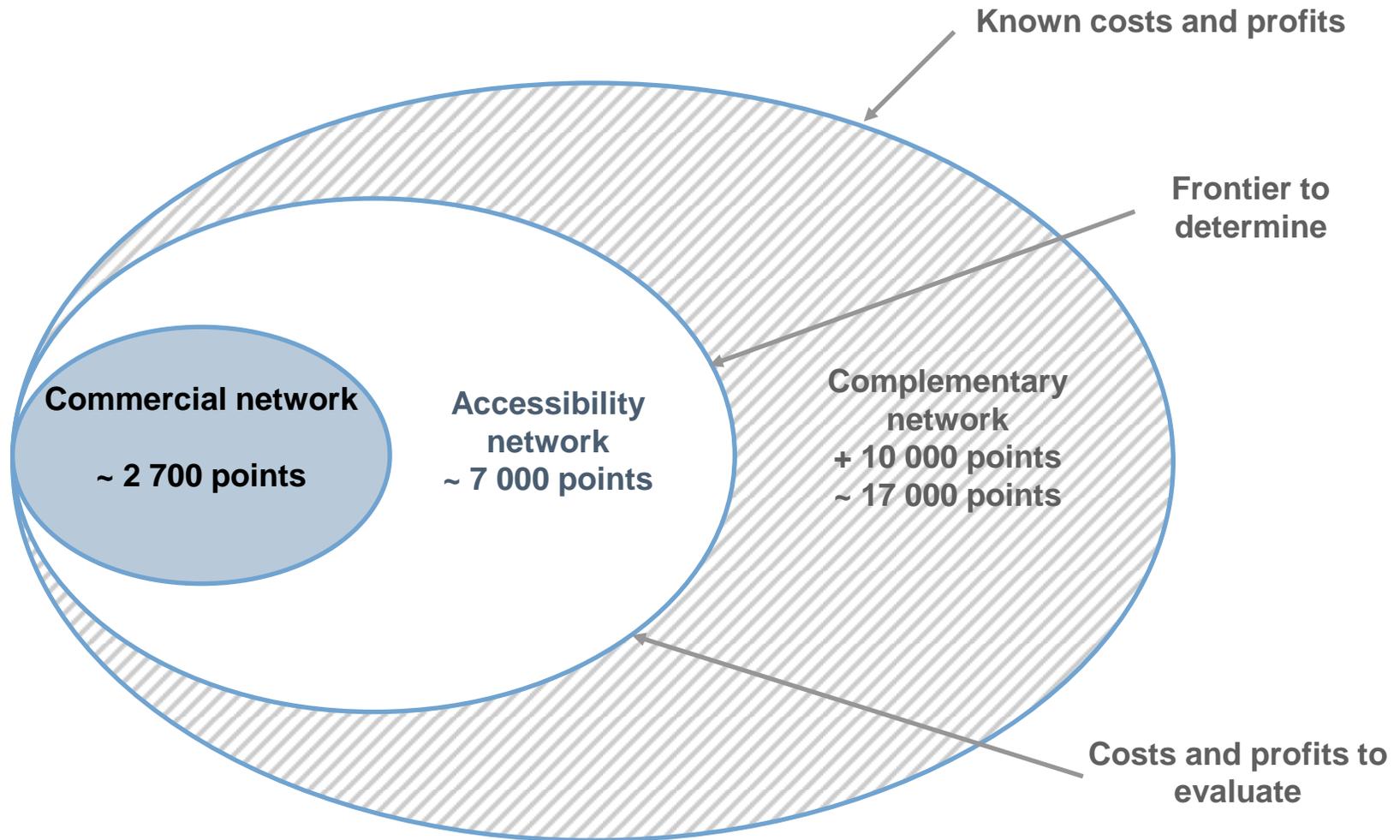ARCEP – François Lions

1st December 2011

Context

- French law invests La Poste with four public utility obligations:
  - bank accessibility,
  - press transport,
  - universal service,
  - nationwide development.

- If La Poste had no public utility obligations, its retail network ("commercial network") would be close to 2 700 points.

- However, both universal service and nationwide development obligations determine La Poste's network size:
  - universal service obligations relating to network size, called the accessibility mission, require around 7 000 points,
  - Nationwide development criteria require La Poste to have 17 000 points.

- Calculation of the additional cost of the nationwide development mission is provided for by the law, and responsibility is delegated to ARCEP.

Layers of the postal network

Known costs and profits

Frontier to determine

Commercial network

~ 2 700 points

Accessibility network
~ 7 000 points

Complementary network
+ 10 000 points
~ 17 000 points

Costs and profits to evaluate

Cost assessment methodology: the net cost principle

▶ The net cost is calculated by comparing the profit (or loss if negative) made by the operator invested with the public utility mission, with the profit made in a scenario where the operator would not be invested with this mission:

   ▪ net cost = profit without mission – profit with mission

      = (income without mission – costs without mission) – (income with mission – costs with mission)

      = (costs with mission – costs without mission) – (income with mission – income without mission)

      = avoided cost – lost income

▶ This methodology requires assessing the situation of the operator in a scenario where it would not be invested with a public utility mission (hypothetical scenario):

   ▪ the law forces La Poste to have a network of 17 000 points,

   ▪ it adds that the nationwide development constraint on La Poste's network size is complementary to the accessibility mission, hence the definition of a "complementary" network,

   ▪ net cost corresponds to the cost of a complementary network development beyond the one required for accessibility.
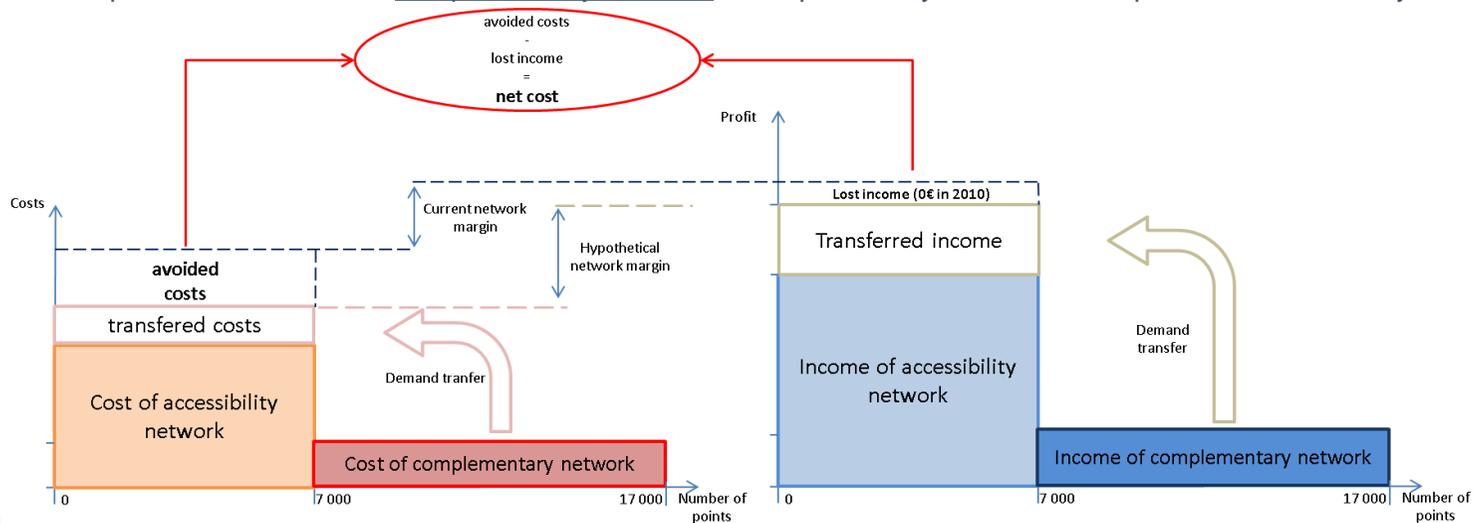
Data available

▶ ARCEP has access to data provided by La Poste IS at a postal point scale:
- the number of minutes of counter activity,
- the number of minutes of automaton activity,
- the total revenue generated,
- geographical coordinates,
- the nature of the postal point (owned by La Poste or partner)
- average opening time, including the distribution of the average activity depending on the time.

▶ However, some data are not available at a postal point scale:
- costs (personal, real estate, supervisory staff, etc.),
- specific characteristics of each postal point:
  - surface,
  - number of counters,
  - etc.

▶ Hence the necessity of modeling to calculate extra data. One example is the estimation of manpower given by an approximation of the Erlang law.
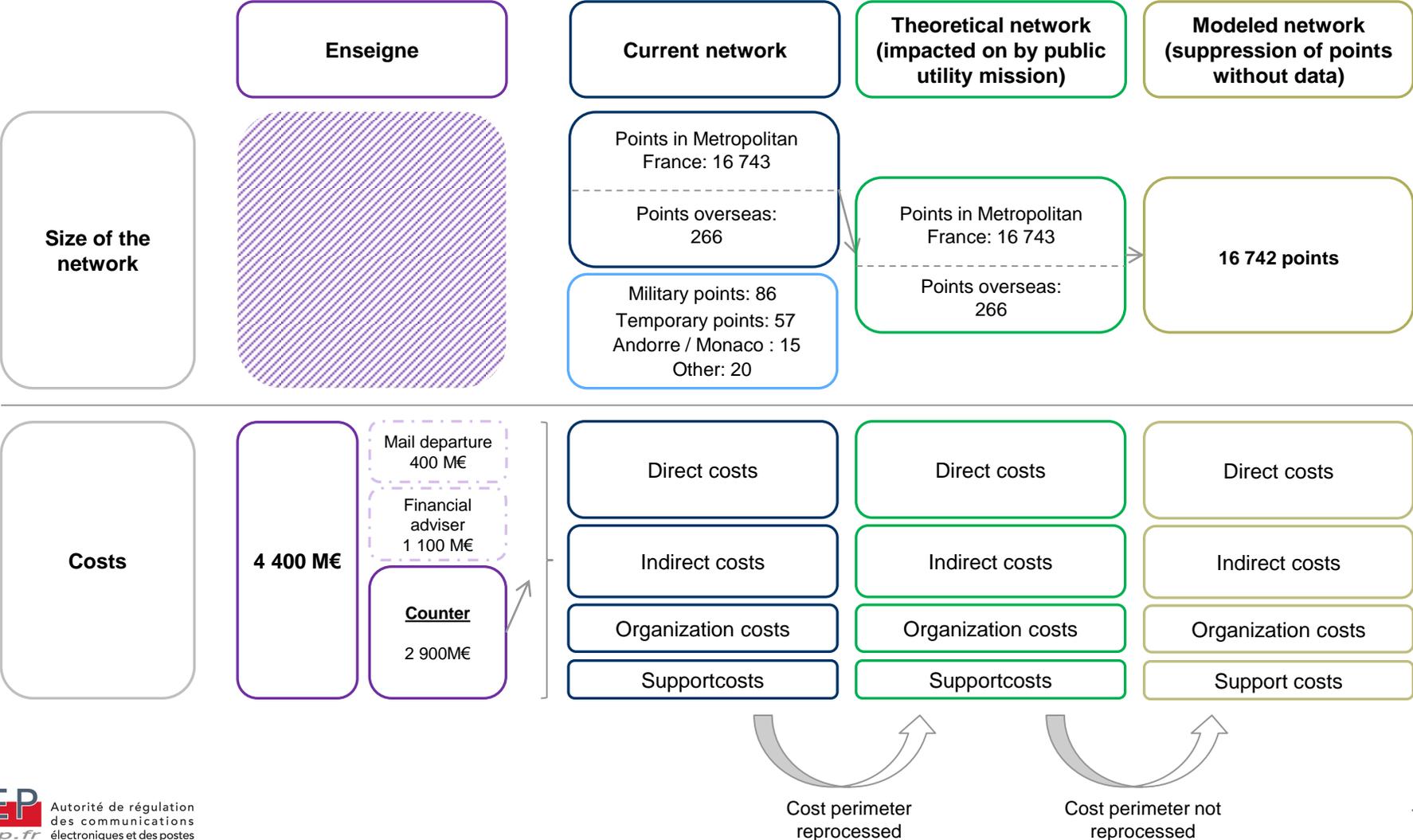
Principles of the evaluation

▶ **Net cost is calculated as avoided costs minus lost income** between a reference scenario, corresponding to the current network operated by La Poste, and a hypothetical scenario corresponding to the network that would be operated by La Poste, would it be not invested with the nationwide development mission.

▶ The calculation therefore relies on:
  ▪ the identification of the complementary points,
  ▪ the evaluation of costs and income of complementary points,
  ▪ the transfer of activity (and costs) when complementary points are suppressed,
  ▪ the evaluation of costs and income of the hypothetical network.

▶ Modeling is necessary for two reasons:
  ▪ calculation of net cost requires to allocate costs and profits of the network between points belonging to the accessibility part and those belonging to the complementary part. So far, cost accounting does not present a sufficient level of details to carry out such an allocation,
  ▪ net cost principle requires the network modeling to assess the transfer effects when the complementary part of the network is removed.

Principles of the evaluation: scope

The evaluation requires to define the scope (size and costs) of the retail points belonging to the complementary network and removed in the hypothetical scenario.

	Enseigne	**Current network**	**Theoretical network (impacted on by public utility mission)**	**Modeled network (suppression of points without data)**
Size of the network		Points in Metropolitan France: 16 743 / Points overseas: 266 / Military points: 86, Temporary points: 57, Andorre / Monaco : 15, Other: 20	Points in Metropolitan France: 16 743 / Points overseas: 266	**16 742 points**
Costs	**4 400 M€** — Mail departure 400 M€, Financial adviser 1 100 M€, **Counter** 2 900M€	Direct costs / Indirect costs / Organization costs / Supportcosts	Direct costs / Indirect costs / Organization costs / Supportcosts	Direct costs / Indirect costs / Organization costs / Support costs

Cost perimeter reprocessed

Cost perimeter not reprocessed

Principles of the evaluation: costs nomenclature

▶ Counter costs are split in four main sub-categories reflecting the different activities of a postal point.

▶ Some of them are directly determined by the level of activity:
- automaton costs,
- counter costs.

Costs			Drivers
Direct costs	Partners	Remuneration	Fixed remuneration
	Automaton	Mail	Automaton Activity
		Bank	Automaton Activity
		Support	Automaton Activity
	Counter	Personal	Manpower required to process the counter activity (erlang)
		Operation	Manpower required to process the counter activity (erlang)
		Provision	Manpower required to process the counter activity (erlang)
	Counter support	Personal	Fixed part (number of points) and variable part (activity)
		Operation and provision	Fixed part (number of points) and variable part (activity)
Total			
Indirect costs		Supervisory	Fixed part (number of points) and variable part (activity)
		Real estate	Surface required to process the activity and square meter price
		Other operation and personal costs	Prorata
		Non productive and training	Personal
Total			
Organization costs		Real estate	Prorata
		Sales head department	Prorata
		Technical support and logistics	Prorata
		Territorial offices	Prorata
		Other (Customer Service Center + Field head departments + Various)	Prorata
Total			
Support costs		Informatics	Prorata
		Maintenance	Prorata
		Human resouces	Personal
		Training	Personal
		Provision for paid leave	Personal
		Supply and payable accounting	Prorata
		Receivable accounting	Prorata
		Mail provision	Prorata
		Funds transportation	Prorata
		Other	Prorata
Total			
		Common law local tax	Prorata

Erlang law

▶ The average number of counters required to process a specific amount of traffic is given by a linear approximation of the Erlang law:

- hypothesis of perfect adjustment of the number of counters to the traffic,
- modeling relying on the average traffic (no consideration for rush and off-peak hours).

▶ Parameters used are:

- average length to process one client (average length of one operation, average number of operations per client, length of initial contact which adds up to the total activity time),
- probability of satisfaction for a waiting time target,
- communicated by La Poste.

▶ The "counter clerk time" required to process the activity is given by $x * a + b$, which can be interpreted as follow:

- x is the counter activity,
- the "counter clerk time" is composed of an incompressible minimum (b) and of a time corresponding to "a" times the amount of activity to process (a > 1 means that time is necessary to take into account the fact clients arrive unpredictably and that there exists incompressible gaps).
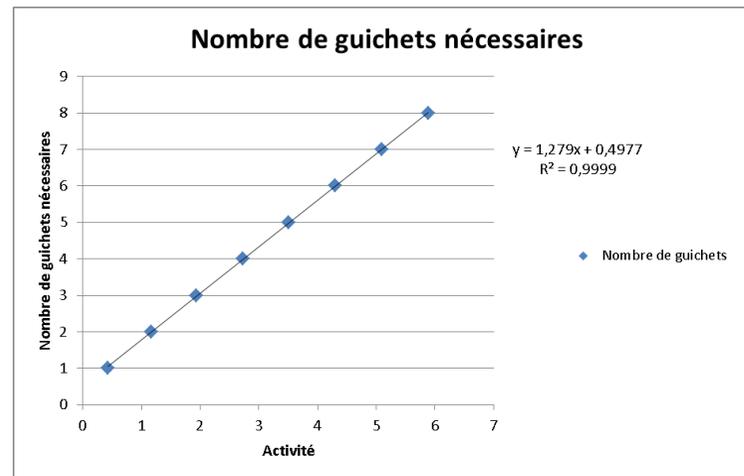
Erlang law

▶ Erlang parameters

Parameters

Average length of one operation	a
Average number of operations per client	b
Length of initial contact	c
Average length of processing	a*b+c
Target time of maximum waiting	5 min
Target probability of satisfactiob	82%

▶ Processing capacity depends on the number of counters

Number of counters	1	2	3	4	5	6	7	8
Processing capacity of a retail point (hours)	0,4	1,2	1,9	2,7	3,5	4,3	5,1	5,9

▶ This result can be linearized:

Nombre de guichets nécessaires

$y = 1,279x + 0,4977$
$R^2 = 0,9999$

◆ Nombre de guichets

▶ Number of counters is given by max*(1 ; a*activité + b) ;* the non-integer number (beyong 1) is the result of the counters number adjustment.

Erlang law

- ▶ The time required is therefore obtained by:
  - ▪ calculating the average activity per opening hour,
  - ▪ determining the counter clerk presence that is required to satisfy the target of quality of service,
  - ▪ considering a presence obligation.

- ▶ The hypothesis of a minimum of one counter clerk causes an extra obligation independent of the activity.

- ▶ An "empty" time linked to the presence obligation can be identified when the necessary clerk presence is smaller than 1.

Principles of the evaluation: costs nomenclature

▸ Some others are based on specific drivers:
- surface and square meters price (real estate),
- manpower determined by the level of activity (supervisory staff),
- level of costs generated by staff (HR, training, etc.).

▸ The rest (organization costs made of costs generated by the entities to which the postal points are associated, and support costs made of costs generated by supporting activities that postal points benefit of) is calculated on a prorata basis.

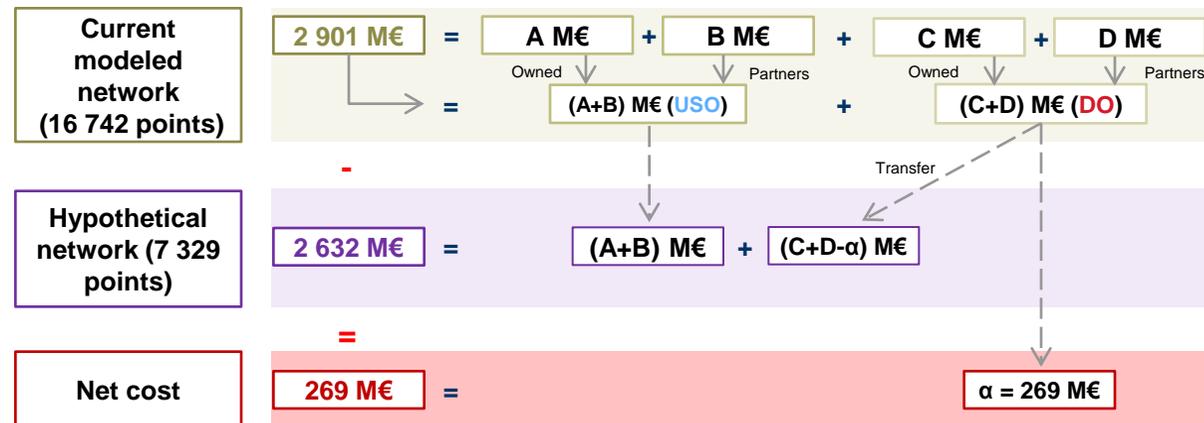| Costs			Drivers
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Total			
		Common law local tax	Prorata

Net cost assessment

▶ Costs of the complementary points are calculated. The modeling takes into account cost drivers to determine costs mostly based on traffic:

- the modeling of the number of counters and the time of counter clerk presence required to process the activity,
- the consideration of the financial remuneration to partners,
- the distinction between a fixed and a variable part in the "support" activity,
- the distinction between a fixed and a variable part in the "supervisory" activity,
- the assessment of the surface area attributable to the public utility mission.

▶ The complementary network is suppressed which leads to the transfer to the hypothetical network of the activity. This transfer relies on some hypothesis:

- an integral transfer of the demand with the same level of activity once the complementary part of the network is removed,
- a uniform *mark-up* on the postal points of the hypothetical network to reflect the extra activity caused by the transfer,
- an increasing automation rate which put the net cost up by 30 millions euros.

▶ Costs calculation are made with the same functions as above.

Outcome

▶ Based on the hypothesis of the cost functions and of the demand transfer, the net cost amounts to € 269 millions euros in 2010.

▶ The hypothesis of an integral transfer of the demand leads to <u>income stability</u>. This excludes the possibility to consider the impact of potential immaterial benefit that La Poste would benefit from *via* the development of 10 000 extra points beyond its accessibility obligation.

▶ Based on these hypothesis, lost income amount to € 0 in 2010.

▶ Hence a net cost of € 269 millions.

Current modeled network (16 742 points)	2 901 M€ =	A M€ + B M€ + C M€ + D M€
	=	(A+B) M€ (USO) + (C+D) M€ (DO)

Owned — Partners — Owned — Partners

-

Transfer

Hypothetical network (7 329 points)	2 632 M€ =	(A+B) M€ + (C+D-α) M€

=

Net cost	269 M€ =	α = 269 M€

Two economies for postal points

▸ The cost modeling depending on the activity level shows a positive correlation between costs and activity.

▸ However, this correlation is not the same between postal points owned by La Poste and those in partnership:
- fixed costs are higher in points owned by La Poste,
- variable costs are more sensitive to the activity level in points owned by La Poste.

▸ Differences in costs can also be noted between small and average/big owned points.
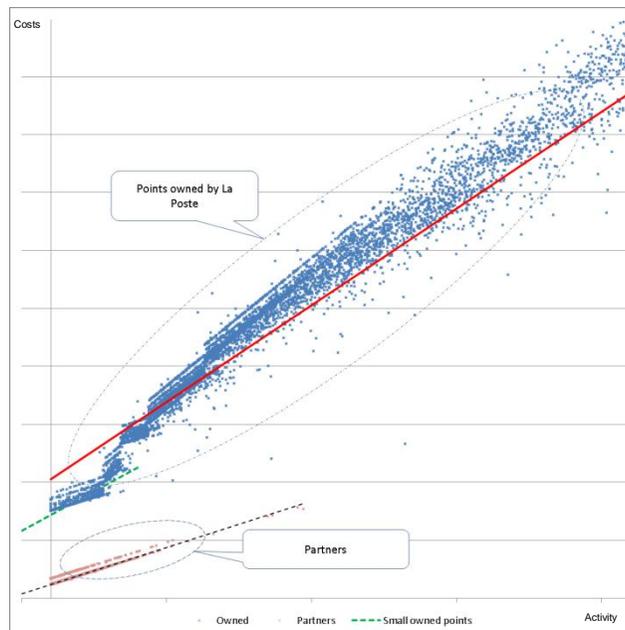
Results from the modeling: efficiency of manpower organization

▸ The estimation of manpower required based on the Erlang law enables to break down the activity of personal in three categories:

- manpower corresponding to the recorded activity,
- manpower necessary to achieve quality targets,
- manpower uneconomic, responding to a presence constraint.
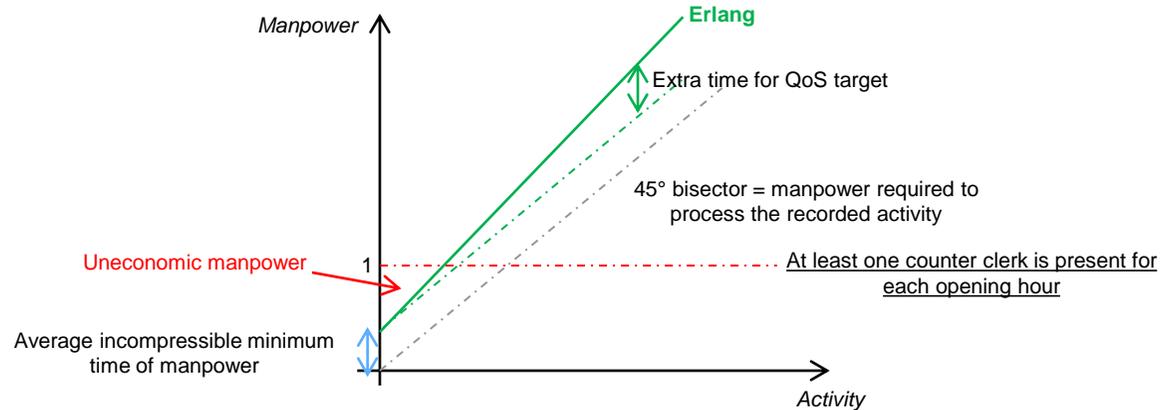
▸ In the following examples, the decomposition of manpower is as follow:
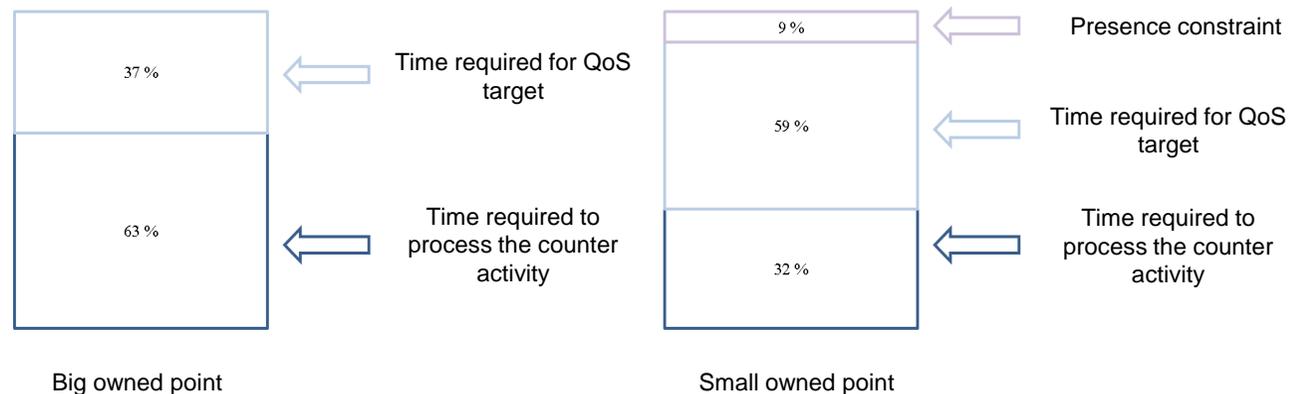
Future work for net cost 2011

▶ Modeling improvement work will be carried through for the evaluation of 2011:
  - detailed analysis of the real estate costs conveyed by La Poste,
  - re-examination of drivers of counter support costs and supervisory costs.

▶ Studies will also be led regarding hypothesis of calculation:
  - appropriateness of immaterial benefits.

APPENDIX

ARCEP is in charge of the net cost evaluation of the constraint on the network development of La Poste

▶ The article 6 of the n° 90-568 law of the 2nd July 1990, modified by the n° 2010-123 of the 9th February 2010:

  ▪ states La Poste obligations (I of article 6),
 ▪ makes provision for compensation mechanisms.

▶ It adds that *« L'Autorité de régulation des communications électroniques et des postes est chargée d'évaluer chaque année le coût net du maillage complémentaire permettant d'assurer la mission d'aménagement du territoire confiée à La Poste au I »*.

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Modeling: intangible benefits

▶ To date, and based on the 2010 WIK study for ARCEP, three intangible benefits may fit to the network development constraints:

- improvement of corporate image,
- advertisement,
- economies of scale.

▶ Lack of quantitative data does not enable ARCEP to consider these parameters in the 2010 net cost calculation.

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Example of geographical modeling

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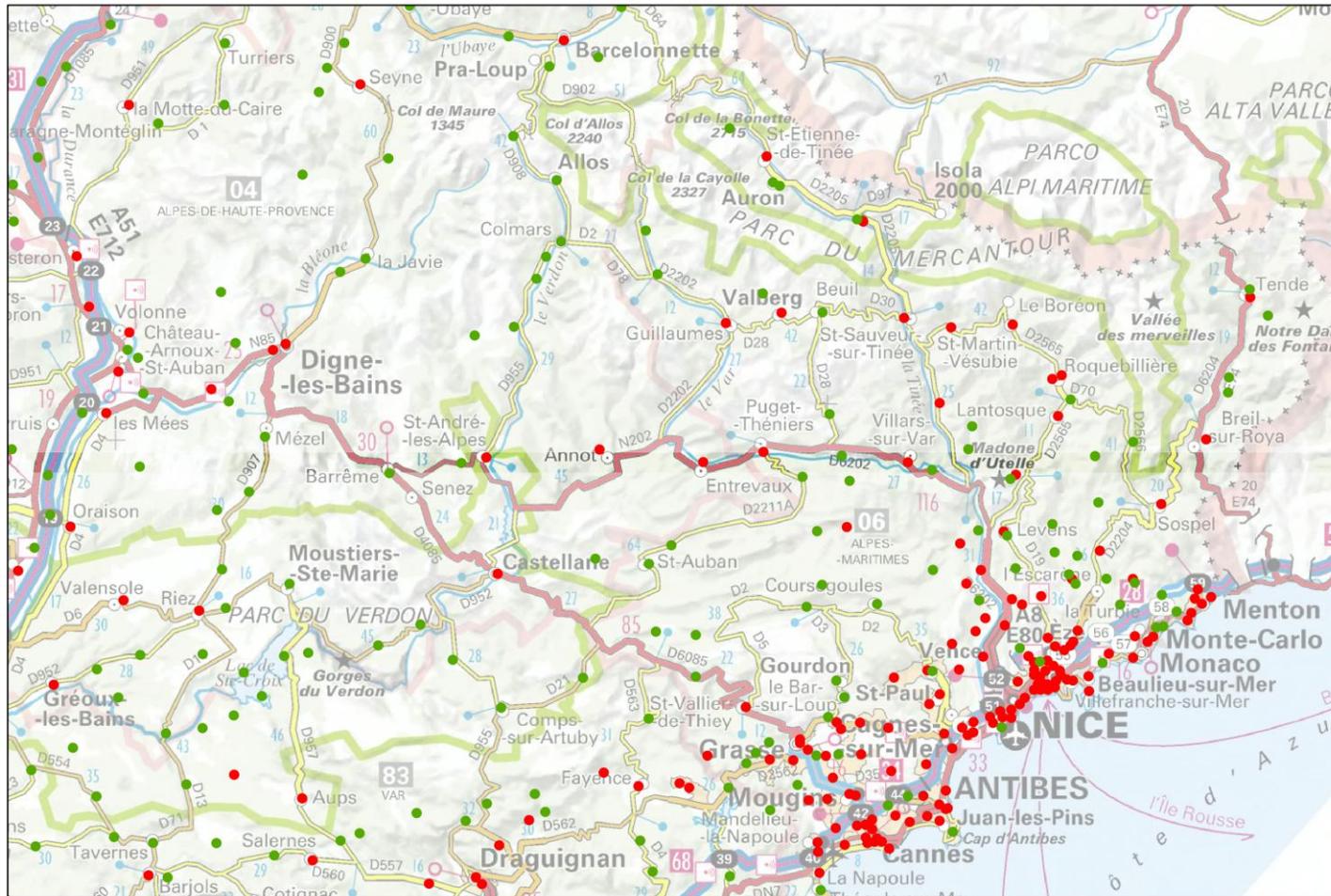
Network evolution

▶ The postal network has been significantly developed for the past 10 years with the expansion of partners,

▶ In average, a postal point owned by La Poste costs 277 k€ against barely 16 k€ for a partner.

Evolution of the network since 2002
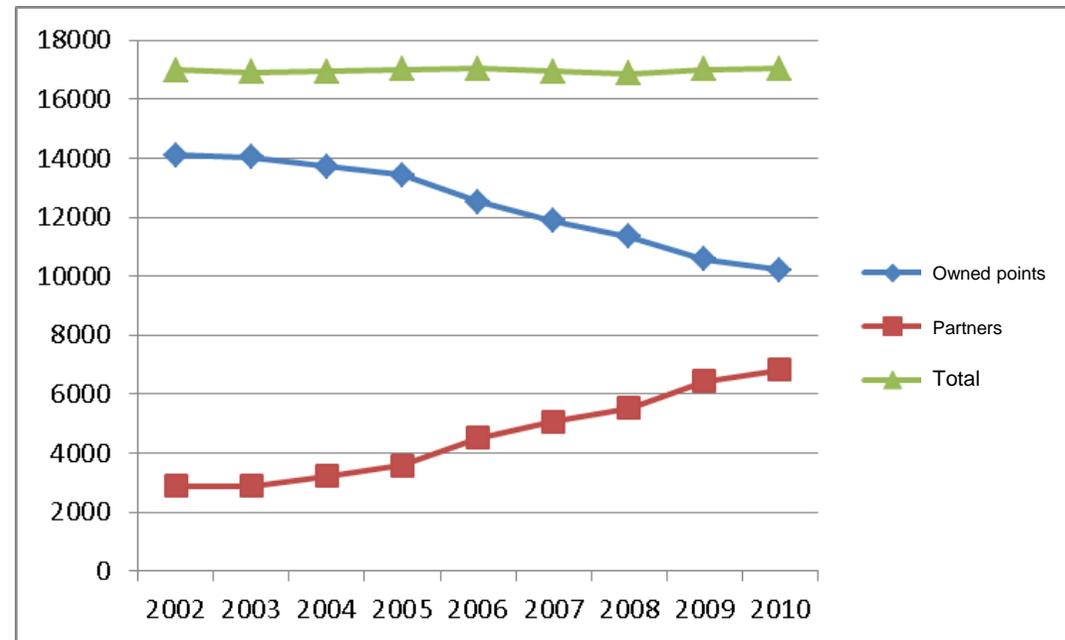
Evolution of costs and compensation

▸ Net cost of netword development constraints is identified in the accounting of La Poste by the name of « Crat présence territoriale ».

▸ Since 2006, the « CRAT présence territoriale » has been falling while the compensation has been growing.

Evolution of CRAT and compensation since 2006