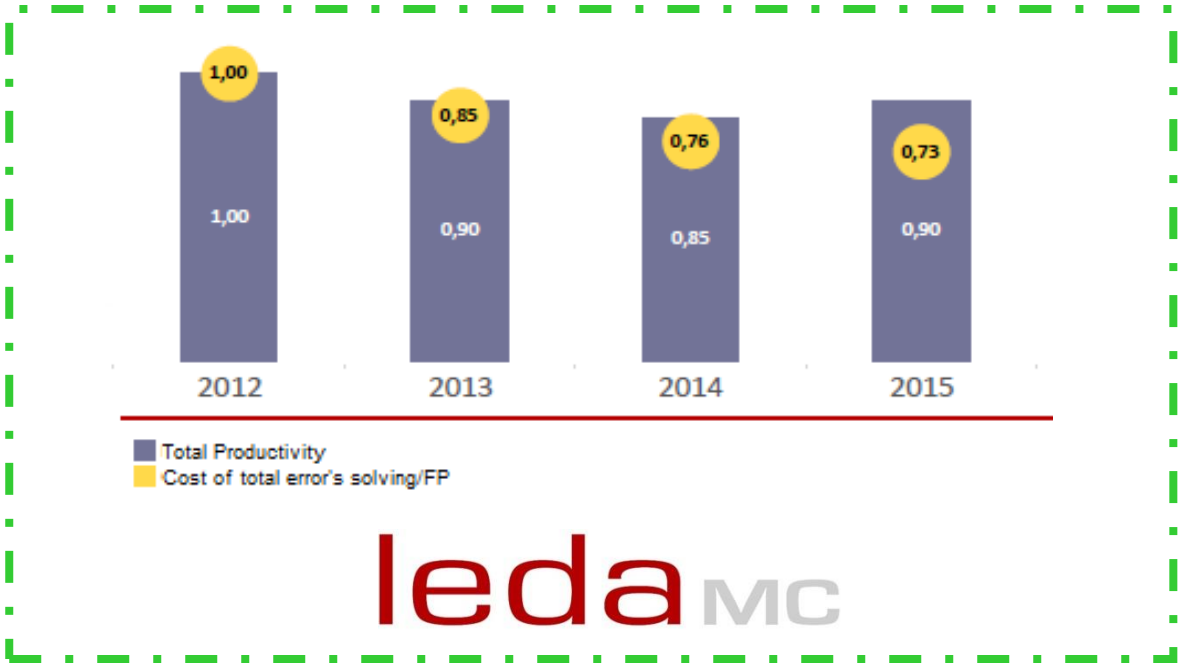
4° International Conference on
IT Data collection, Analysis and Benchmarking
Los Angeles, CA (USA) – September 7, 2016

Rates vs Cost per Function Point

An updated cost analysis



Rafael de la Fuente,Founder and CEO of LEDAmc

Dácil Castelo, Productivity & Estimations Area Director

Raúl Fernández, R&D&i Manager

Goals of the presentation

✓**G1.** Show the main conclusions derived from the Cost per Function Point vs Rates studies carried out by LEDAmc over the last three years, based on our experience and our customers' software development projects information.

✓**G2.** Introduce quality performance vs productivity indicators in two real scenarios.

Background

LEDAmc has been implementing Productivity and Quality Control Offices and Estimation Models for large companies since 2008 in Spain, Portugal and Colombia.

These companies have large costs on software development. Our repository gathers information from more than 18.000 software development projects (mainly adaptive maintenance projects), which
allows us to have wide visibility over the relationship between development productivity and unit cost.

Our findings in terms of Rates vs. Cost per Function Point have been presented at several conferences in the past. We would like to share updated results with you as they evolve with the addition of new data and scenarios.

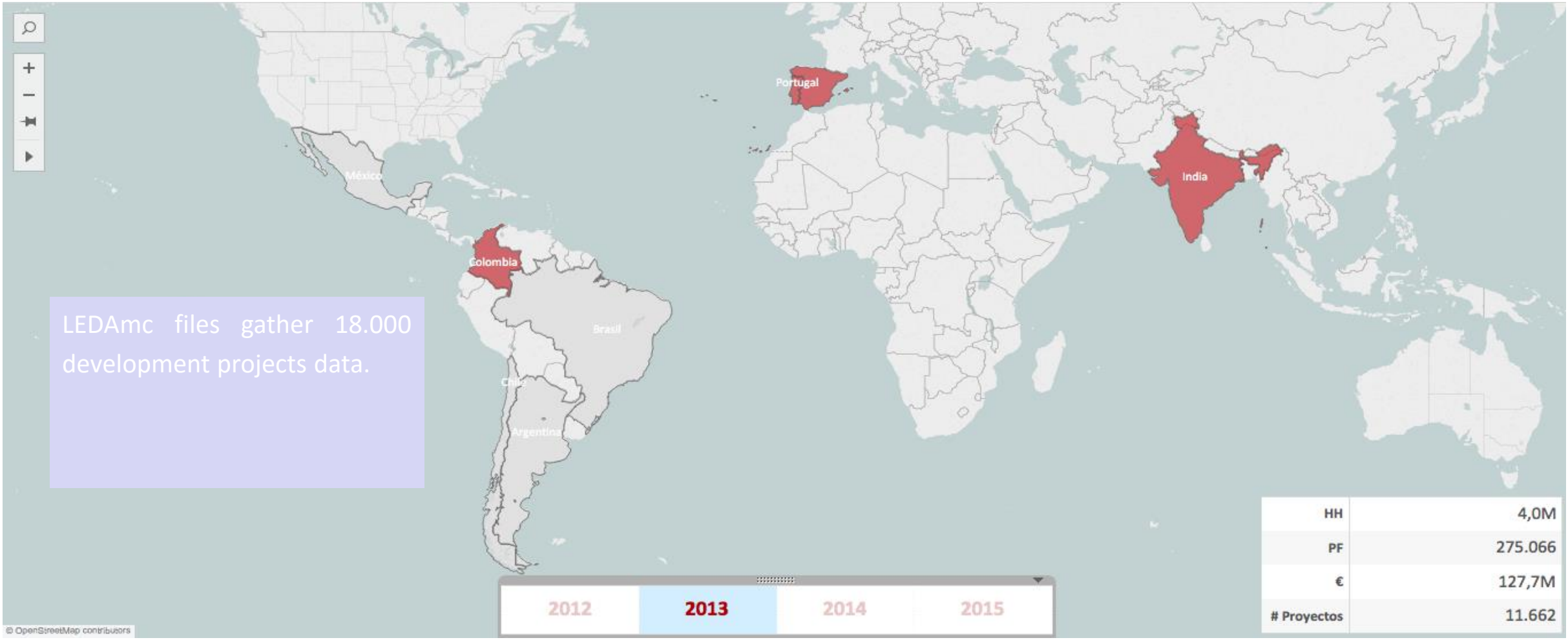
Background

Conferences

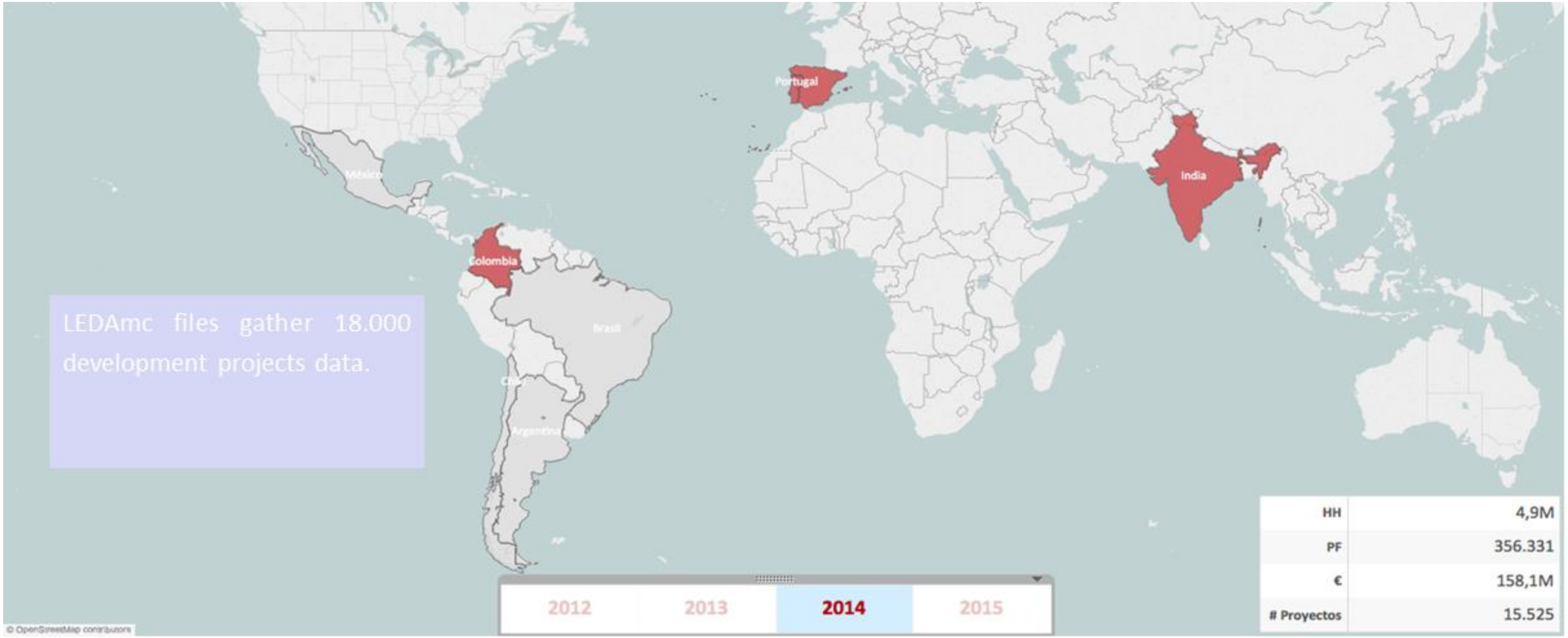
LEDAmc files gather 18.000 development projects data.

Background

Leda repository



LEDAmc files gather 18.000 development projects data.

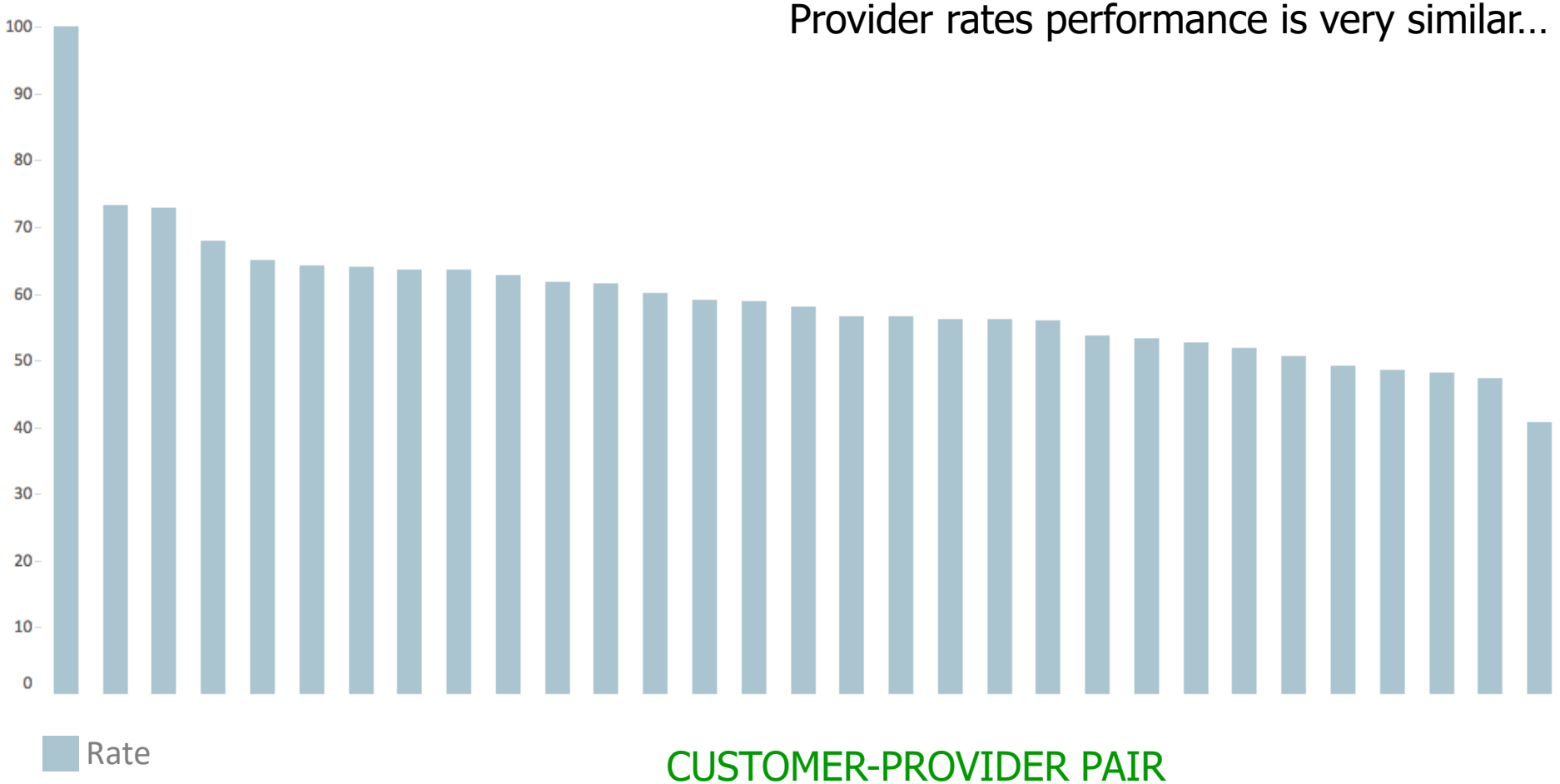

Portugal
India
Colombia
LEDAmc files gather 18.000 development projects data.
2012
2013
2014
2015
HH 4,9M
PF 356.331
€ 158,1M
Proyectos 15.525
© OpenStreetMap contributors

Background

Leda repository

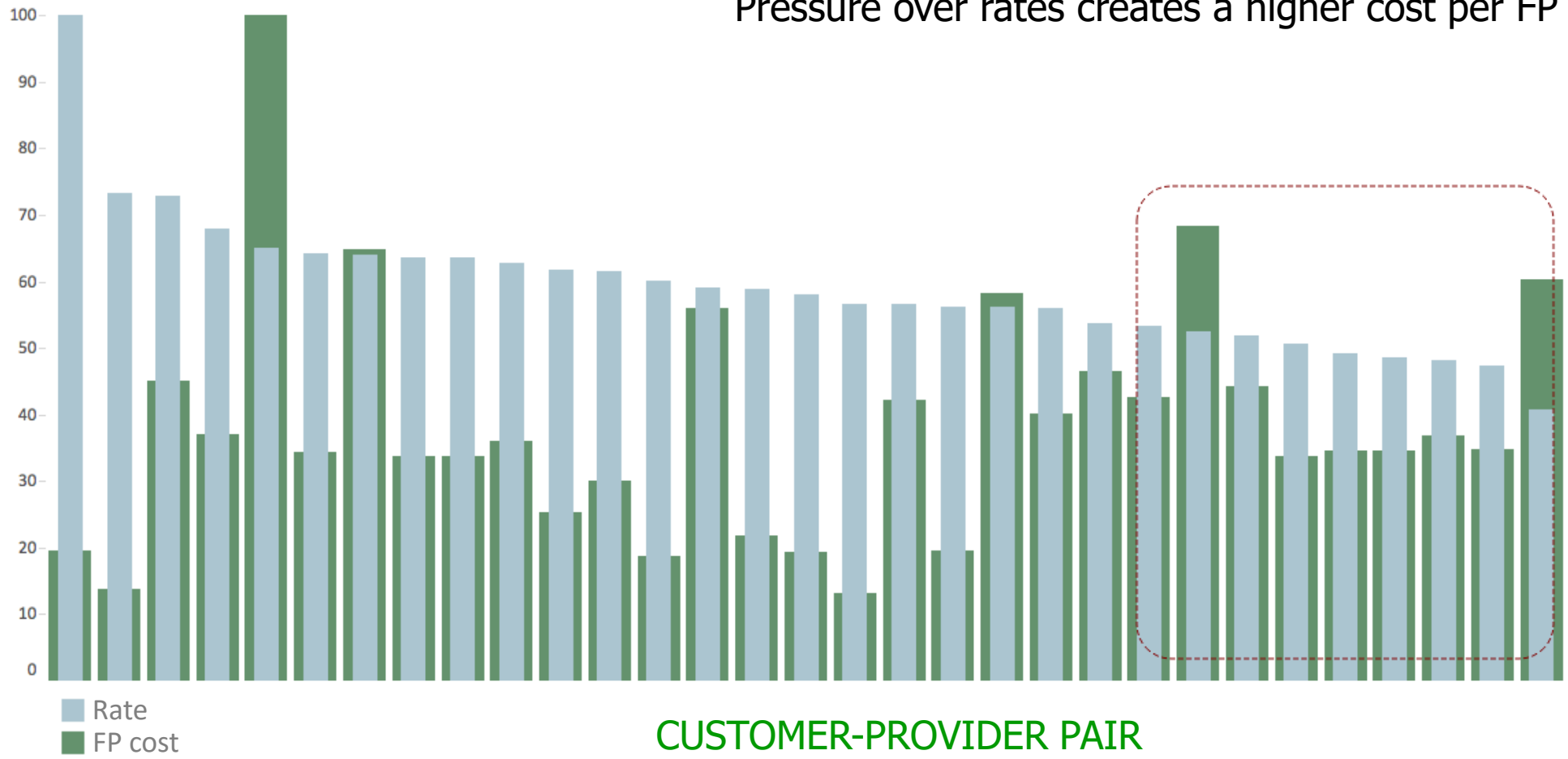
Rates vs cost per FP

Provider rates performance is very similar…



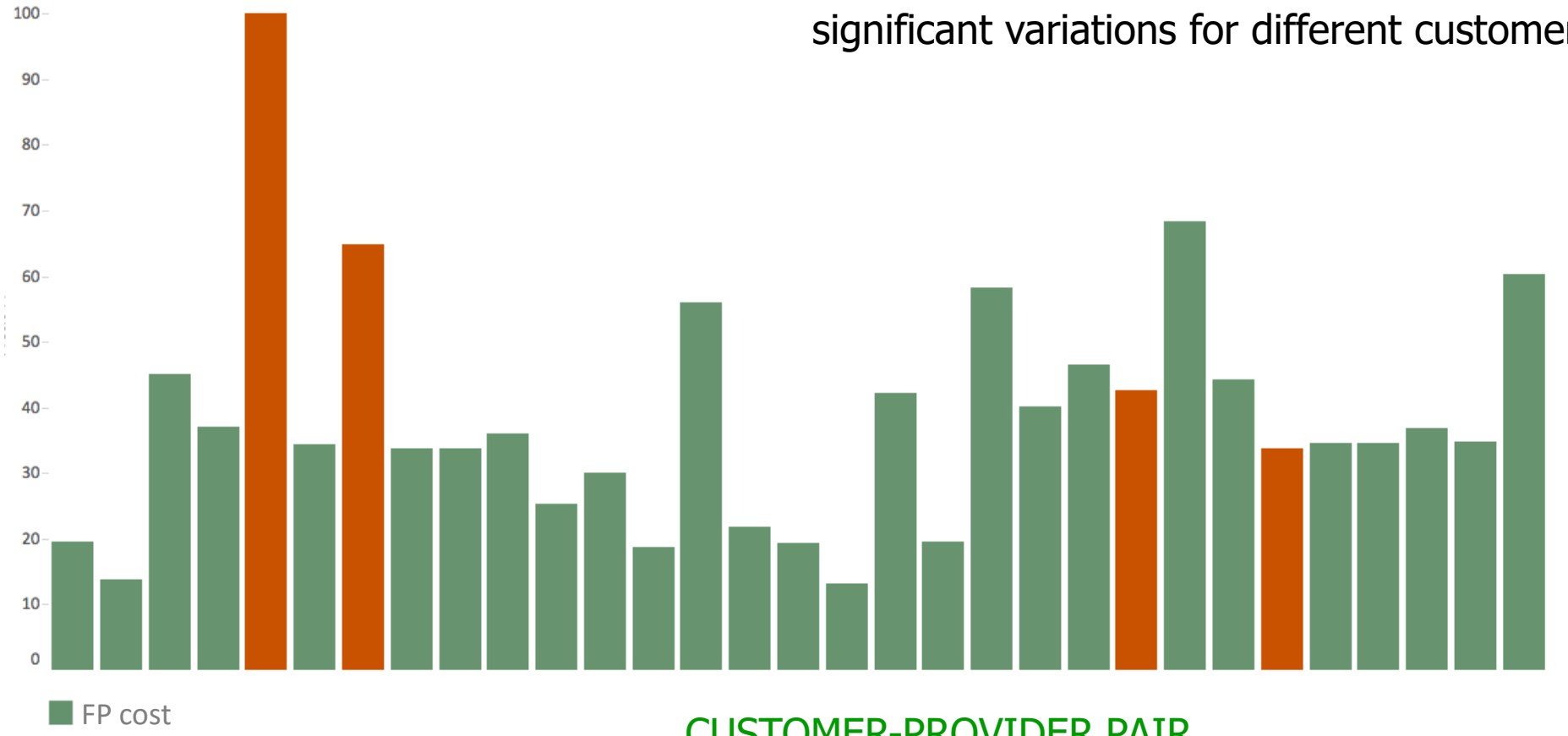
Rates vs cost per FP

Pressure over rates creates a higher cost per FP



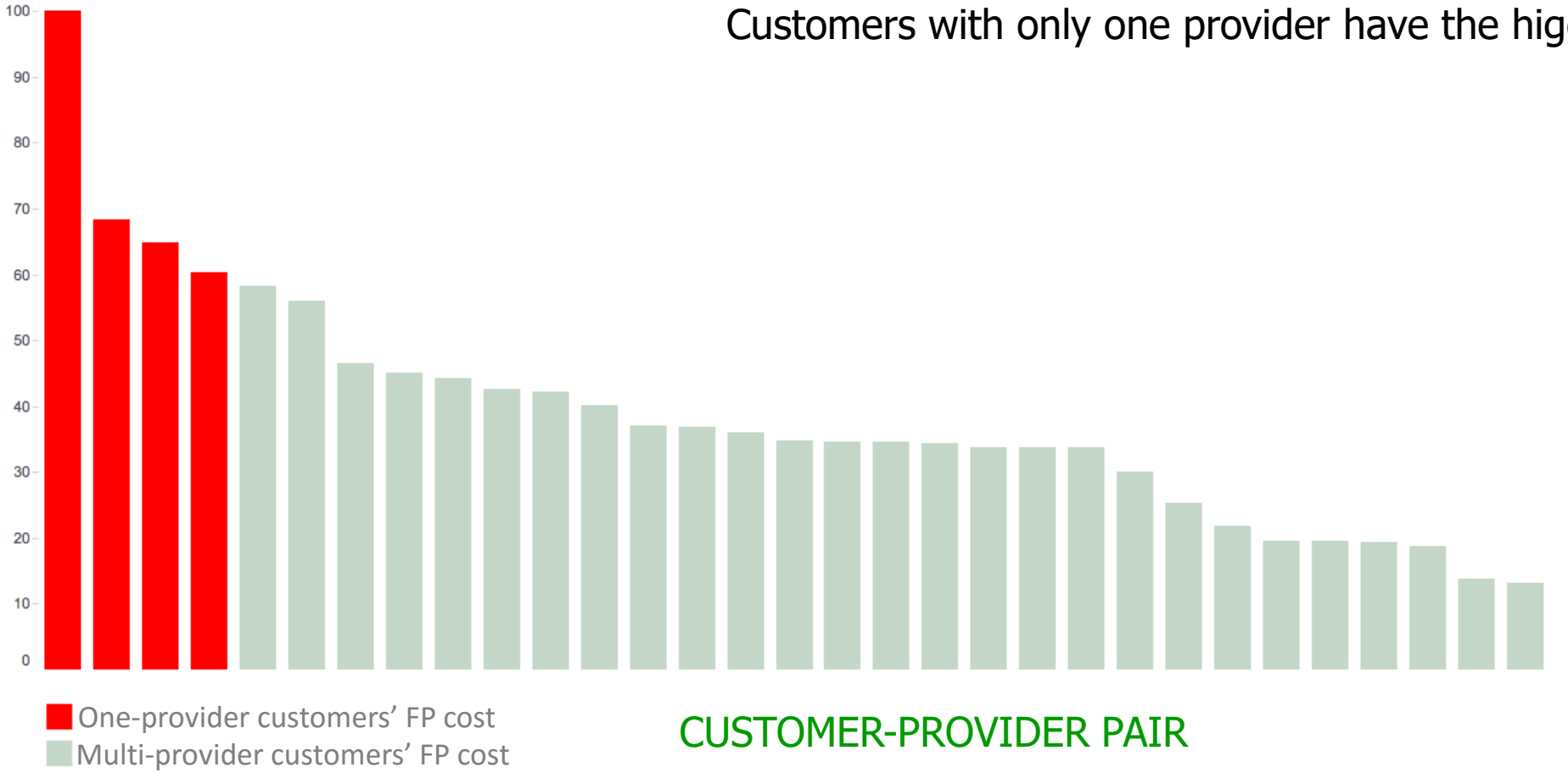
Rates vs cost per FP

FP cost coming from the same provider has significant variations for different customers



Rates vs cost per FP

Customers with only one provider have the higest FP cost



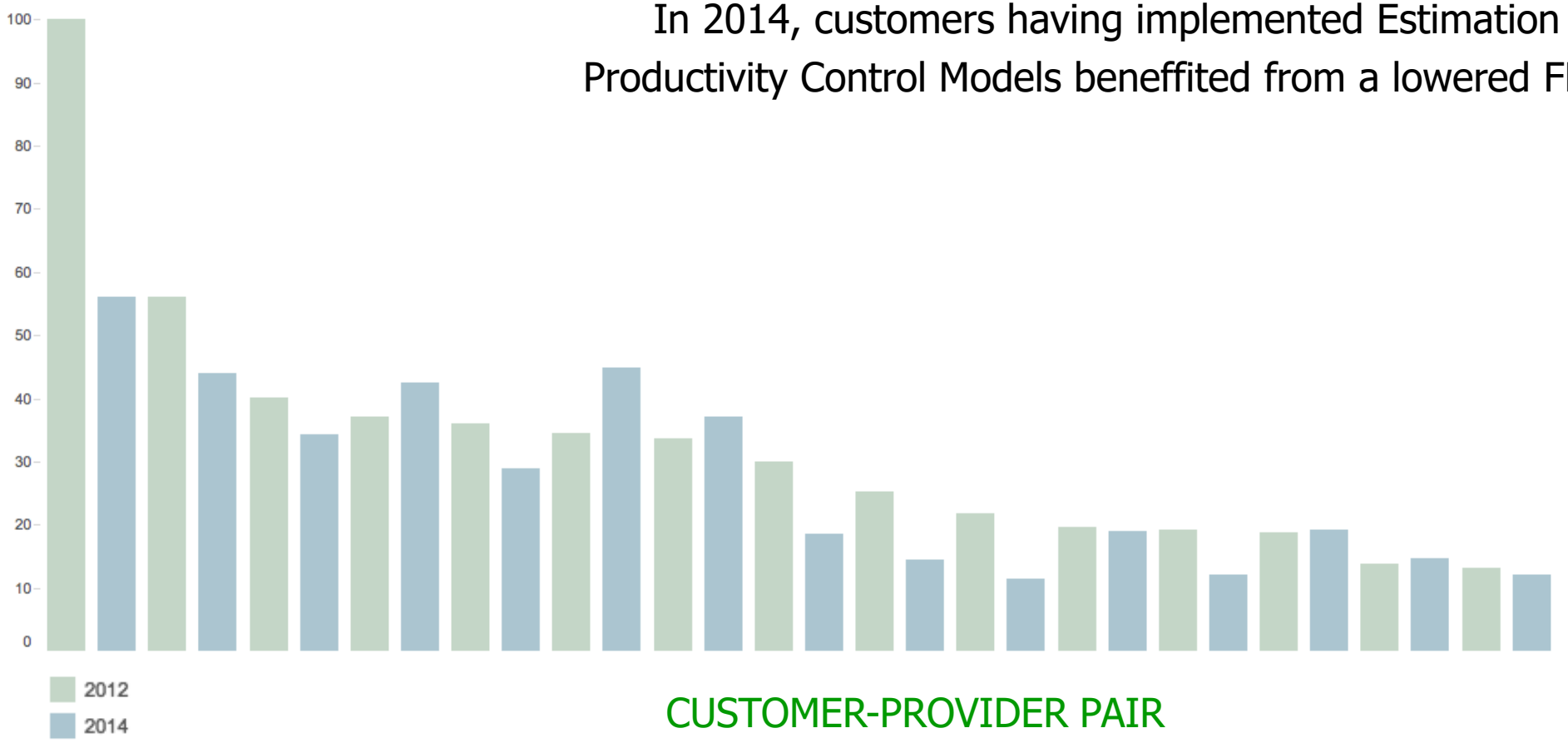
Rates vs cost per FP

In our 2012 study we highlighted important mismatching as far as FP cost is concerned (all providers and customers included)

CUSTOMER-PROVIDER PAIR

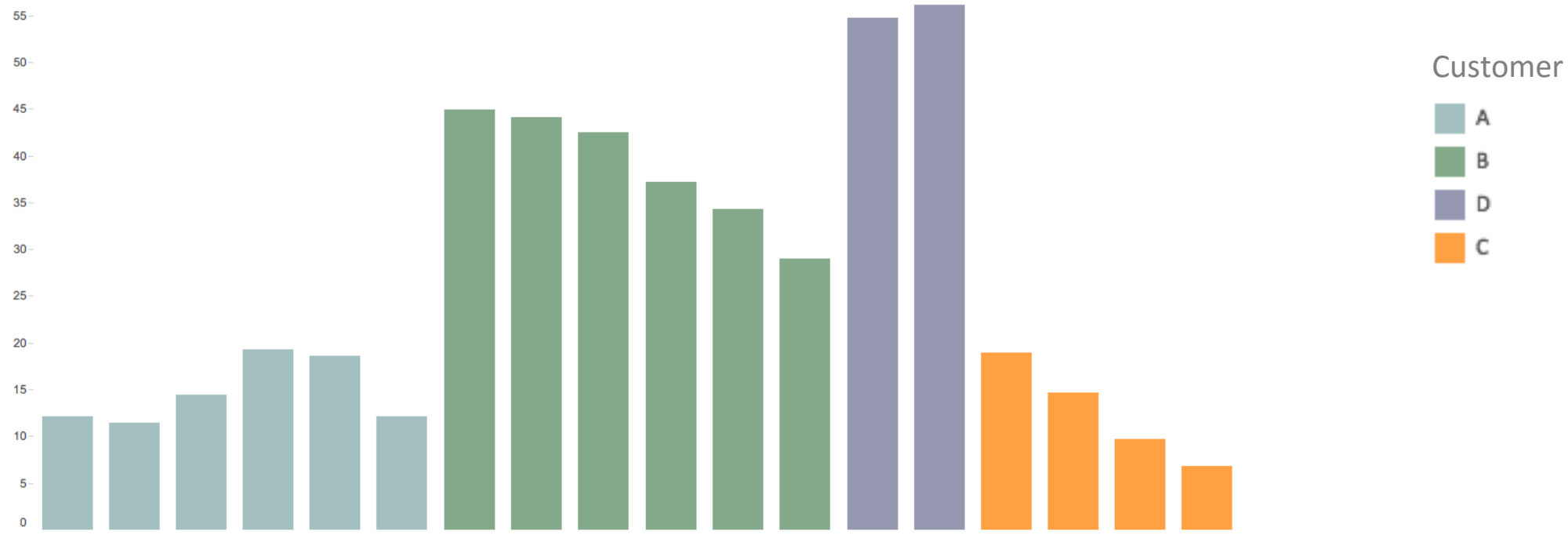
Rates vs cost per FP

In 2014, customers having implemented Estimation & Productivity Control Models beneffited from a lowered FP cost

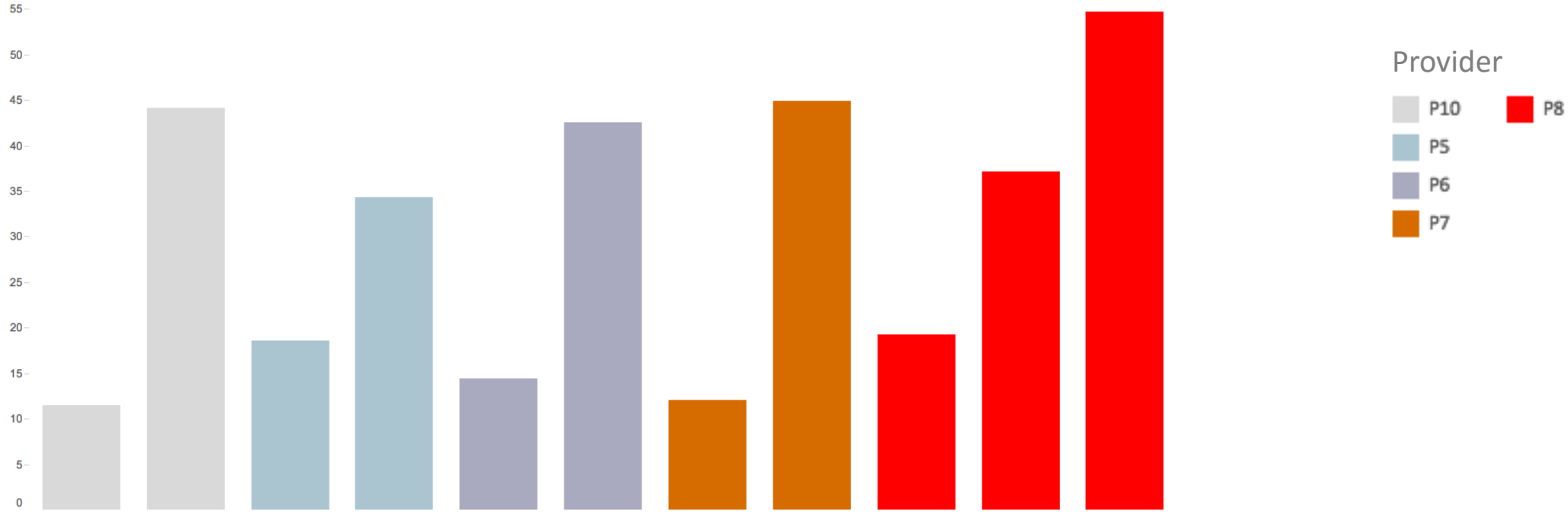


CUSTOMER-PROVIDER PAIR

Customers adopting Estimation & Productivity Control Models tend to homogeneise FP cost among their providers. They have information and they use it to balance to reduce costs: the reference is the best provider



The lack of publicly available FP cost data turns into heterogeneous FP costs by different providers for the same customer



During last year, LEDAmc has continued the activity of Productivity management for several customers.

For all of them:

- Productivity increases
- Cost per FP decreases
- Control the real rates and their standardization

But… what happens with quality?

It is usually stated that:

- Quality and Productivity are traditional enemies.
- If one goes up, the other goes down.
- You cannot focus on both at the same time.
- Some (most of the) years they focus on cost reduction, and some other (fewer) years they focus on quality improvement.

Is this true?

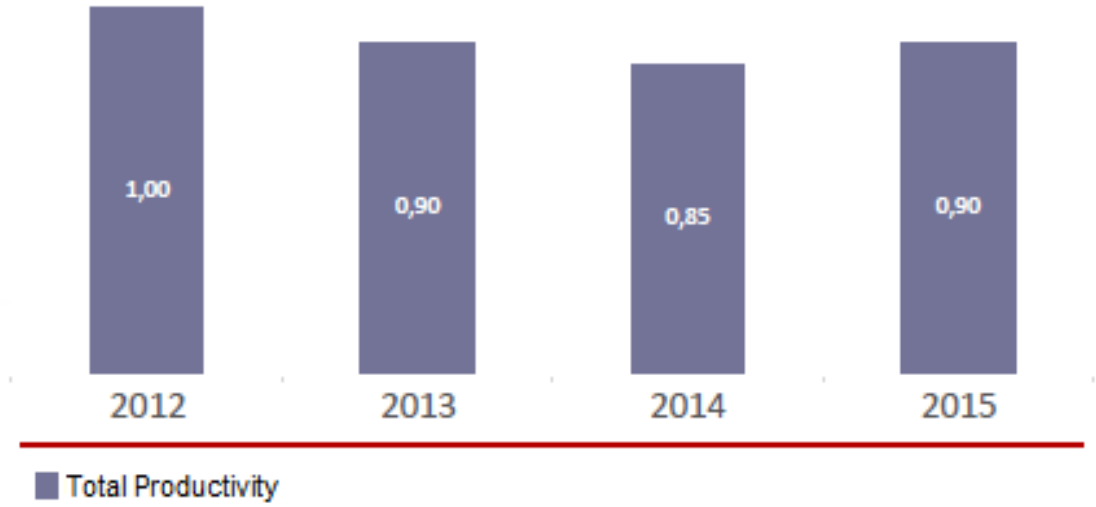
We will introduce two case studies involving two customers with a different behavior:

1. Customer getting constant productivity
2. Customer getting a significant productivity increase

How much quality did they get?

Customer introducing a Productivity & Quality Management Model over 4 years.

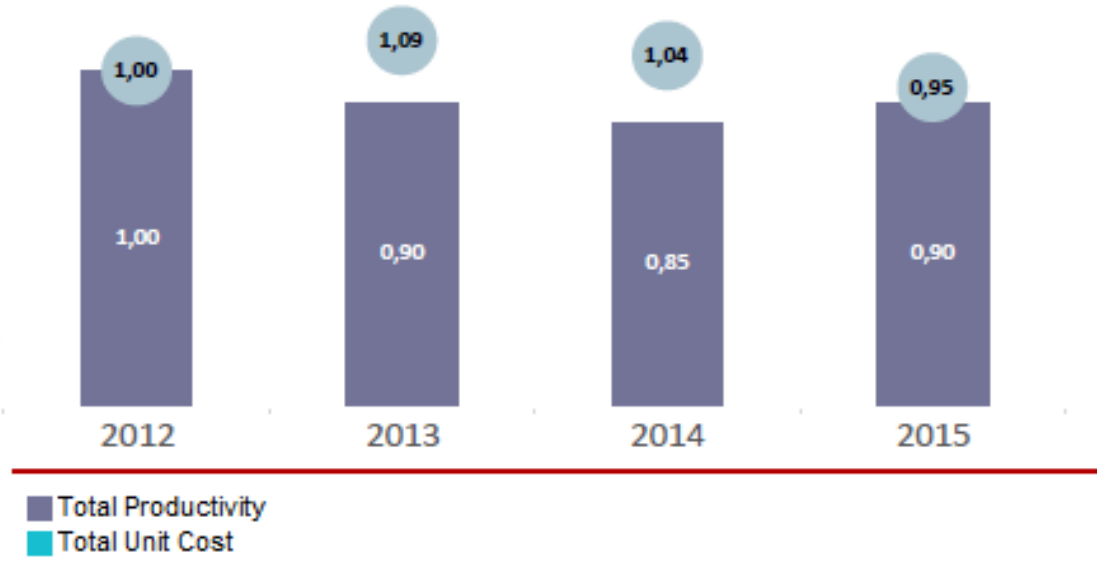
The evolution of the productivity index is refers to the first year.



Main Achievements:

2012: Stabilization period. Specialized provider.
2013: Development providers diversification. The effort of quality assurance is increased.
2014: Provider's delocalization.
2015: Development process stabilization.

What happended with the end-to-end PF Cost?

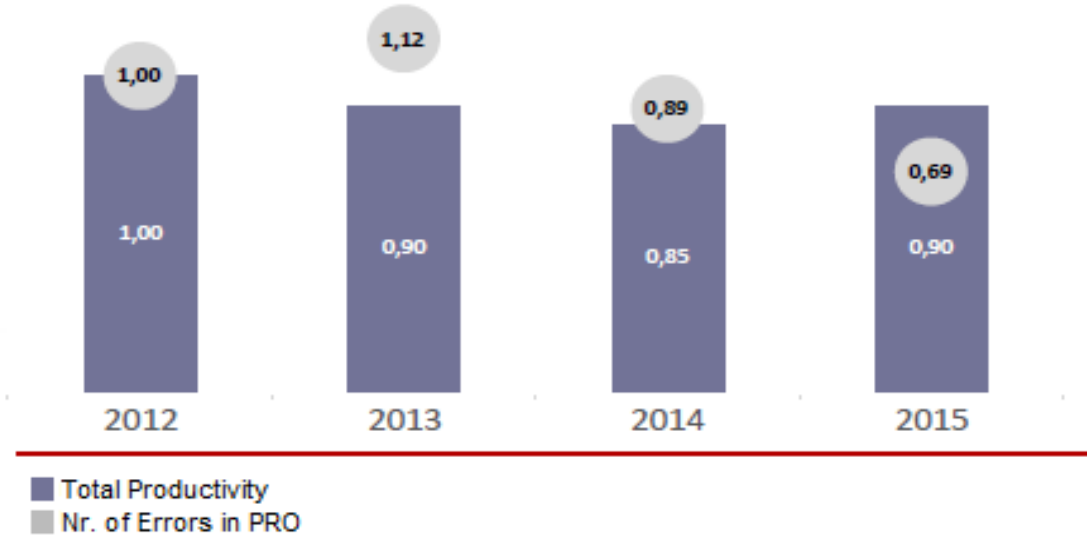


The FP cost increased in 2013 and subsequently decreased up to 5% compared to the first reference.

FP Cost

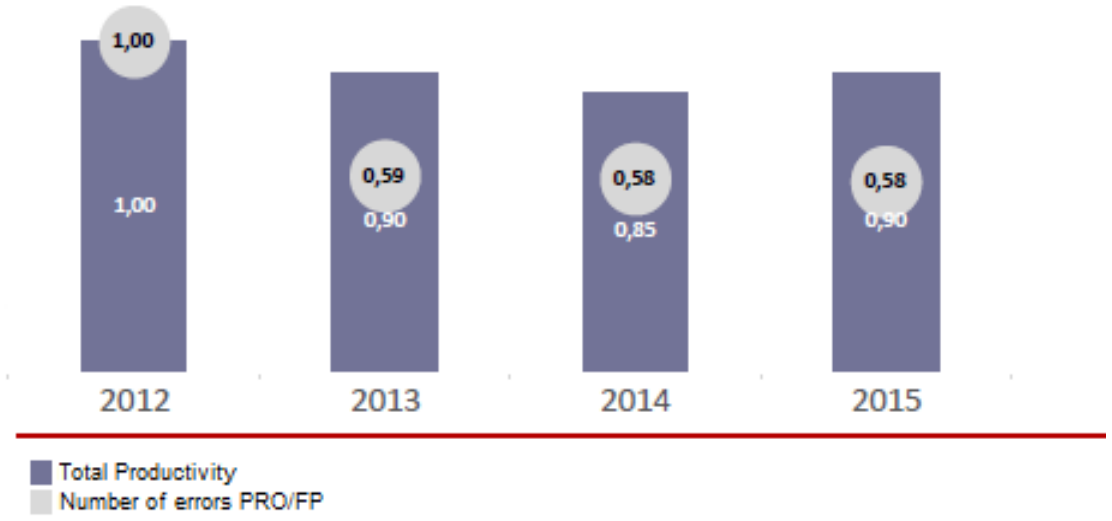
-5%

And what happended with quality?



If we check just the evolution index of the number of errors in production, there is an increase of the number of errors in PRO in 2013 and an appreciable decrease afterwards.

If we normalize the errors in production by the software really produced…



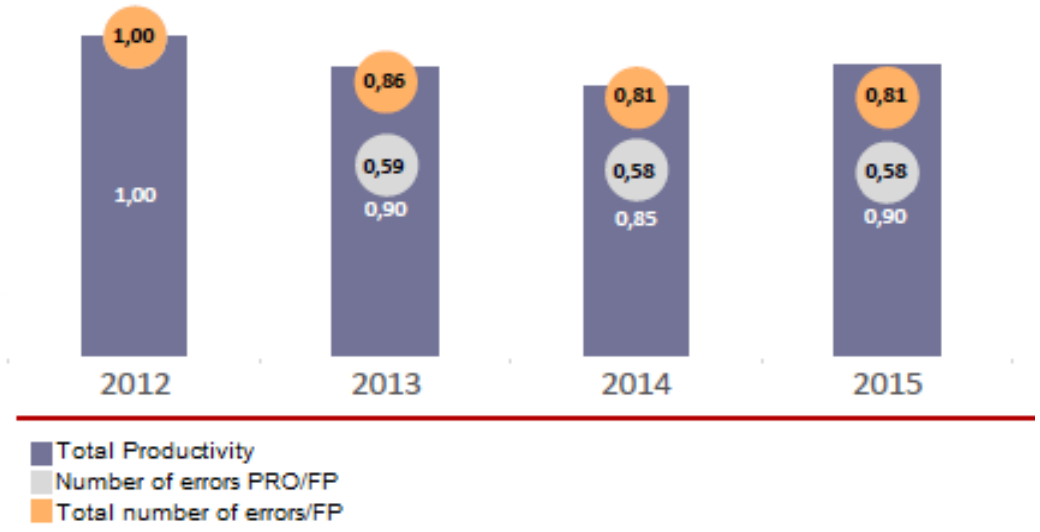
Software quality in production improved in 2013 and remained constant.

It is necessary to normalize the number of errors by the size of the software really produced in order to have a reliable index of quality.

PRO Error Density Indicator

-42%

What is the evolution of the total error density indicator (PRE + PRO)?



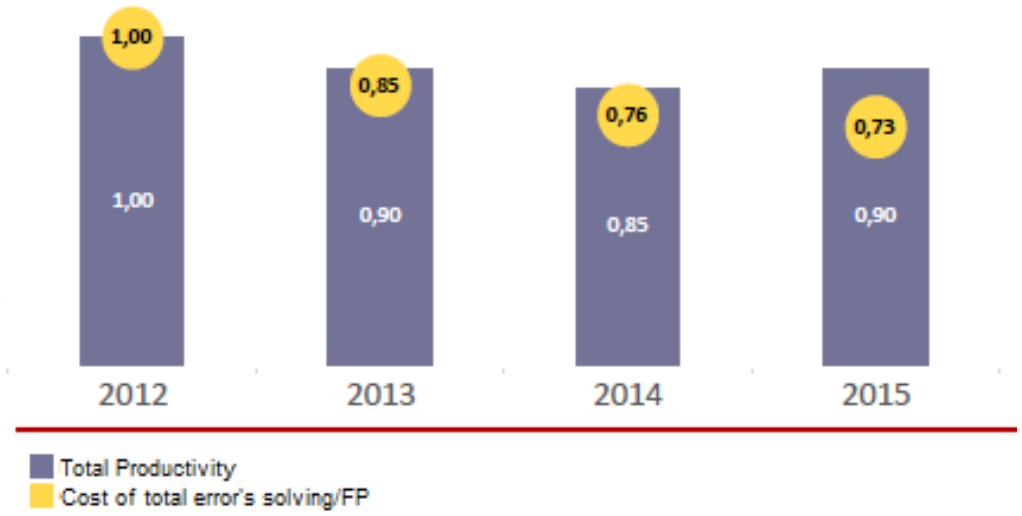
There is a reduction of the total error density indicator while quality is maintained in PRO.

That is a general improvement of development quality in PRE.

Total error density indicator

-19%

What are the economic consequences of this error total density indicator decrease?

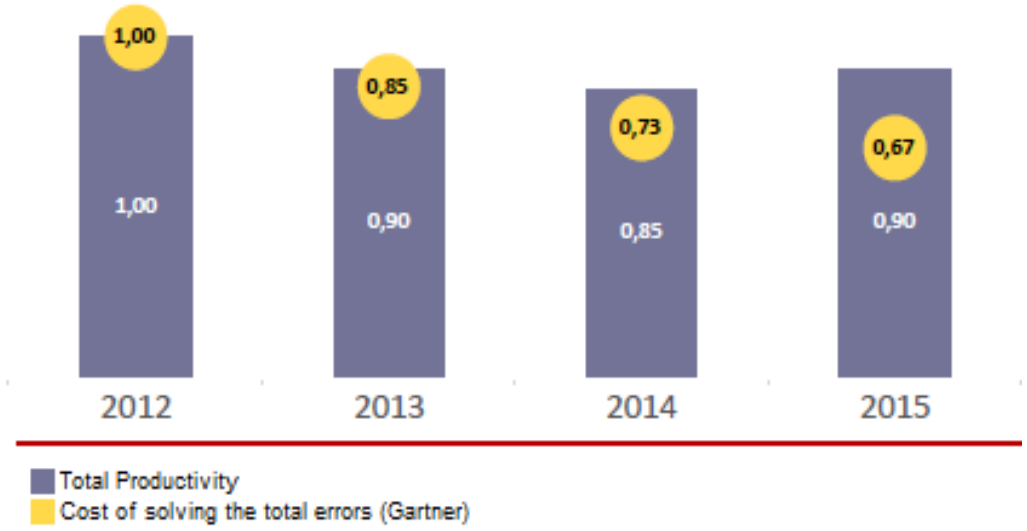


The cost of solving an error in PRO among our customers is between 1,5 and 3 times greater than the cost of solving it in PRE, which means a 27% reduction of bad quality cost per FP.

Bad quality cost

-27%

What are the economic consequences of this error total density indicator decrease?



According to Gartner, this cost could increase up to 10 times (image costs, loss of profit, etc.), which involves up to 33% cost savings for bad quality per FP.

Despite the 10% of productivity loss, in 2015 it was possible to achieve:

>> 42 % decrease of issues per FP.

>> 5 % decrease of the FP cost.

>> 19 % decrease of the total density of errors per FP, increasing the efficiency during the testing process.

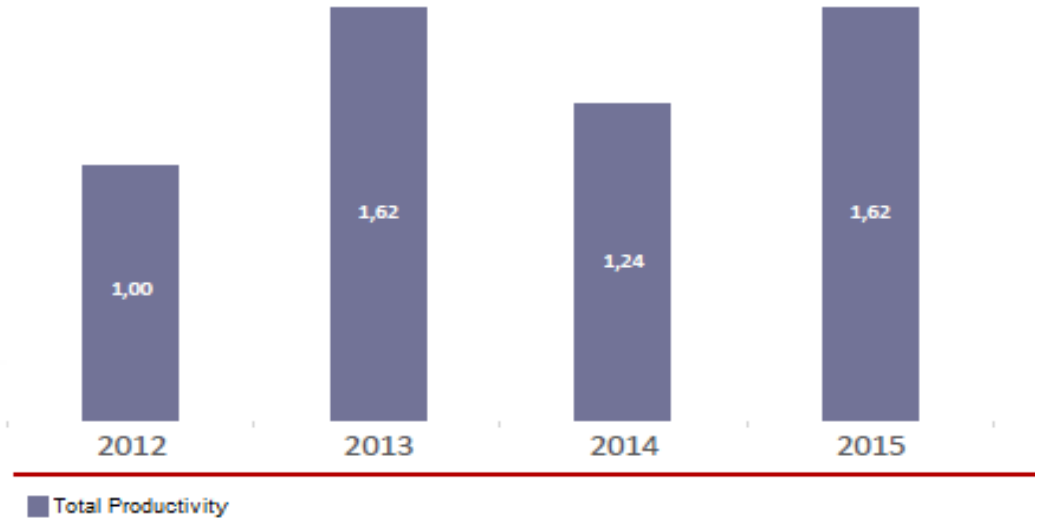
>> Up to a 33 % decrease of the bad quality per FP.

Actually, if productivity is constant, maybe the customer is only focusing on quality.

What happens if the customer focuses too much on productivity?

Customer implementing a Productivity Management Model over 4 years.

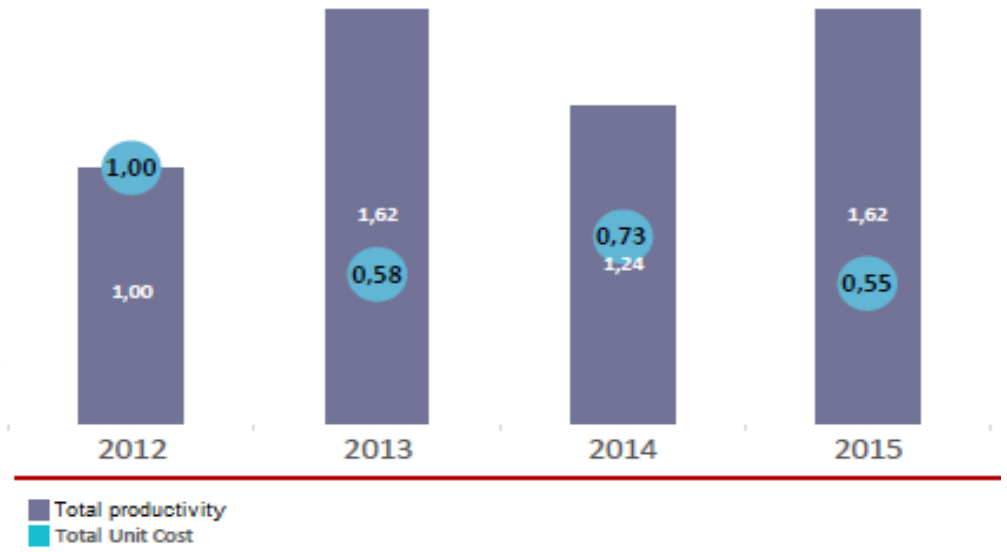
The evolution of productivity index refers to the first year.



Main achievements:

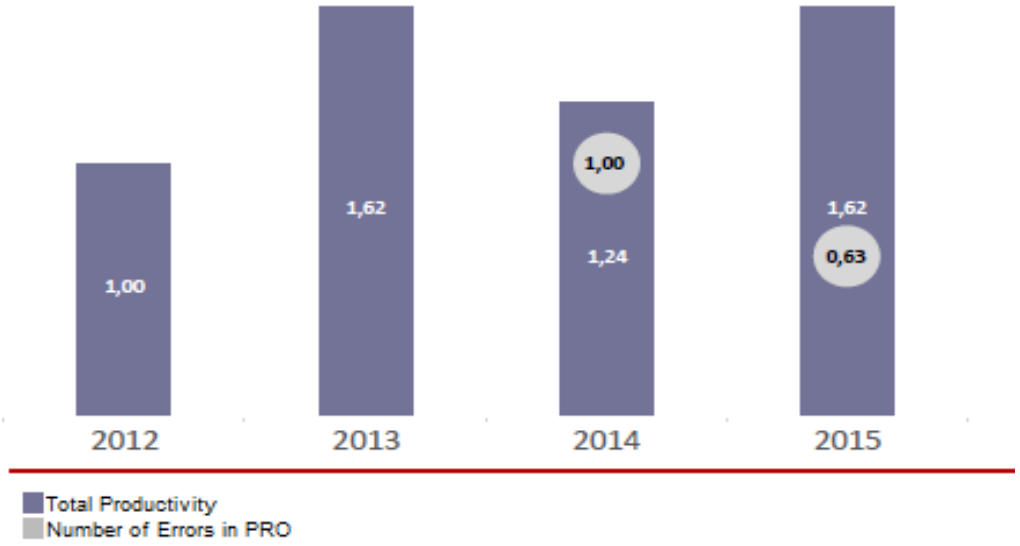
2012: low productivity and very expensive unit costs.
2013: Development diversification. Providers competition. Productivity management.
2014: The hiring model changed and agreements on the service level were introduced. Addition of new providers. Quality management begins.
2015: Addition of new providers in the competition.

As far as cost is concered, there is an improvement on the end-to-end development process efficiency.



If we consider the total costs of the development process, such a remarkable productivity increase translates into a positive global balance, while total FP cost decreases by 45 % compared to the first control year.

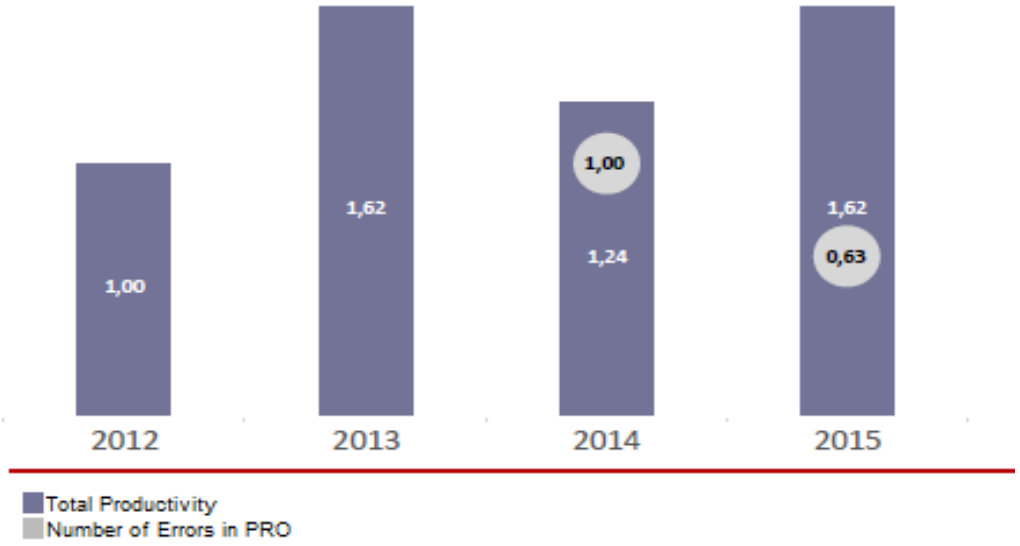
How has quality evolved?



Control begins in 2014 with the introduction of a joint quality and productivity management model.

If we only assess the evolution of the indicator of number of errors in production, it decreases in PRO during 2015 compared to the same period during the previous year.

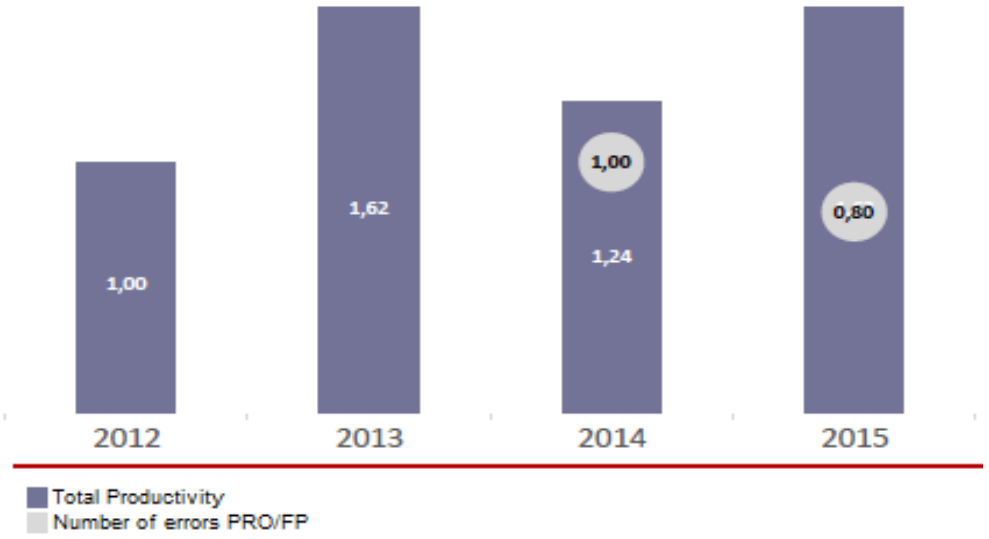
How has quality evolved?



Control begins in 2014 with the introduction of a joint quality and productivity management model.

If we only assess the evolution of the indicator of number of errors in production, it decreases in PRO during 2015 compared to the same period during the previous year.

How has quality evolved?



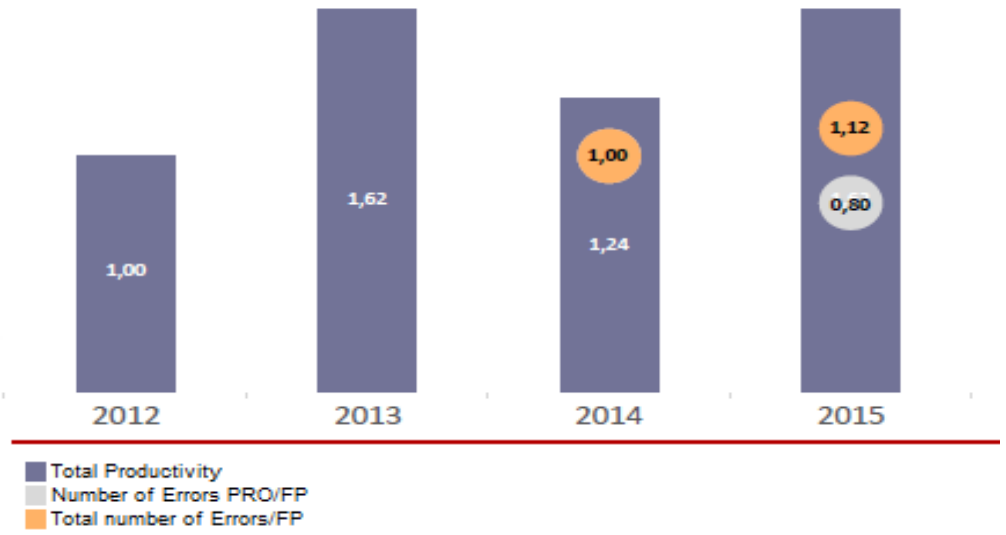
If we normalize errors in production compared to the software really produced, software quality released in production improved in 2015.

It is necessary to normalize the number of errors compared to the size of the software really produced in order to have a reliable index of quality.

PRO Error Density Indicator

-20 %

How has total error density indicator evolved (PRE+PRO)?



If we consider the total amount of errors in PRE and PRO (together) per FP, total error density indicator has increased.

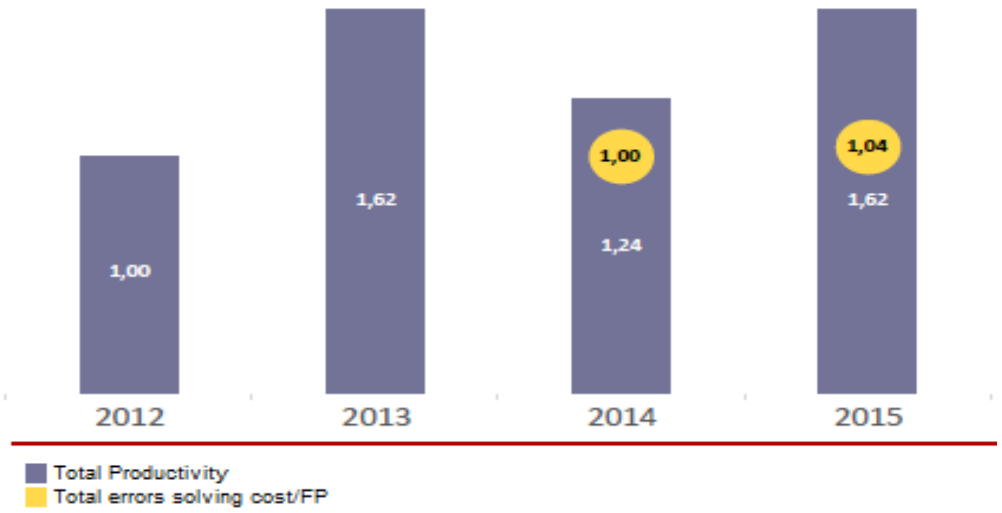
Since density of errors in PRO has decreased, development quality delivered in PRE has decreased (greater error density in PRE).

Therefore, the efficiency of the testing process increases.

Total Error Density Indicator

+12 %

What economic consequences has this increase on the density of total errors?



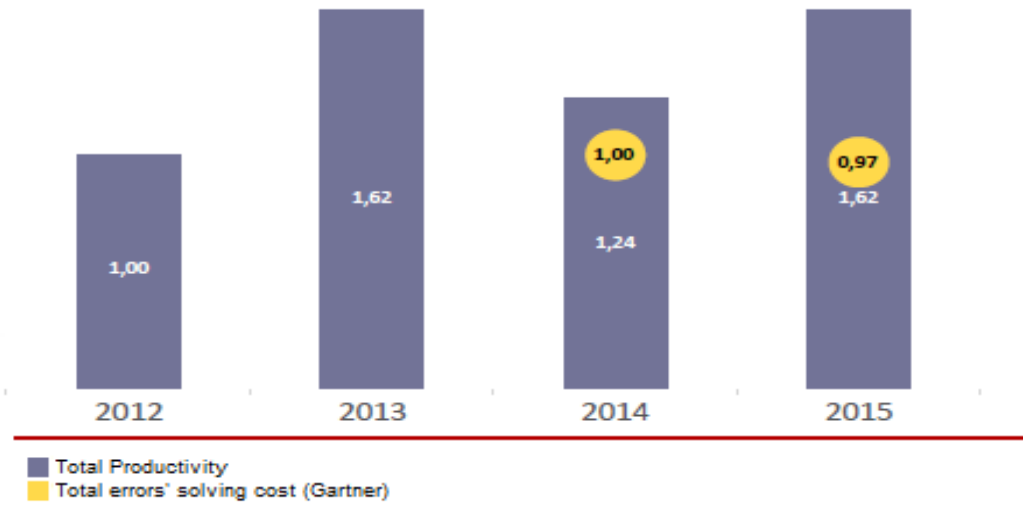
If we consider that solving an error found in PRO is 3 times greater than when found in PRE, bad quality cost stays practically constant compared to the previous year.

Quality improvement in PRO does not compensate bad quality in PRE in terms of costs and, in this scenario, it involves a slight increase of bad quality total cost overall.

Bad quality cost

+4 %

What economic consequences has this increase on the density of total errors?



Considering the ratio given by Gartner (cost in PRO up to 10 times higher than cost in PRE), bad quality cost per FP should have decreased by 3 %.

Thus, the cost of errors in PRO compensates quality degradation in PRE.

Bad quality cost

-3 %

Besides the significant 62 % increase in productivity, some other achievements can be mentioned:

>> A 20 % decrease of the number of issues in PRO per FP.

>> A 45 % decrease of the end-to-end FP cost.

>> Testing process efficiency increase (PRE).

>> Per-FP bad quality cost control.

Conclusions

>>> Customers having productivity models keep on saving

>>> Joint productivity and quality management is required (end-to-end vision)

>>> Global development costs can be reduced by improving quality

A balance between development costs, quality assurance costs and bad quality costs must be found through efficient IT Government