



PARANÁ STATE
STATE FINANCE SECRETARIAT



RECEITA ESTADUAL
REVENUE COORDINATION

Analytics in the Age of Electronic Invoicing and Digital Bookkeeping

The Paraná State Tax
Administration Experience



CIAT — October Meeting
Tax Administration and
the COVID-19 Crisis

October, 20-22, 2020



Paraná State



Digital Economy



Our Pillars for Analytics



Challenges



Business Outcomes

EXECUTIVE SUMMARY

PARANÁ STATE, BRAZIL



5th largest economy in Brazil

(São Paulo, Minas Gerais, Rio de Janeiro, Rio Grande do Sul)



280,000+ corporate tax payers (VAT)

Area (km²): 199,880 *(Arizona: 295,234)*

Population: 11,348,937 *(5.5% of Brazil's pop.)*

399 municipalities

State Capital:
Curitiba



DFe
Documento Fiscal
Eletrônico

4th in electronic invoicing

(São Paulo, Minas Gerais, Rio Grande do Sul)

Electronic invoices profoundly changed tax administrations in Brazil...

Practically all transactions (business to business and business to consumers) now occur in digital format, to comply with the tax code. This means that electronic invoicing and digital bookkeeping became a common place, and the amount of data generated is staggering.

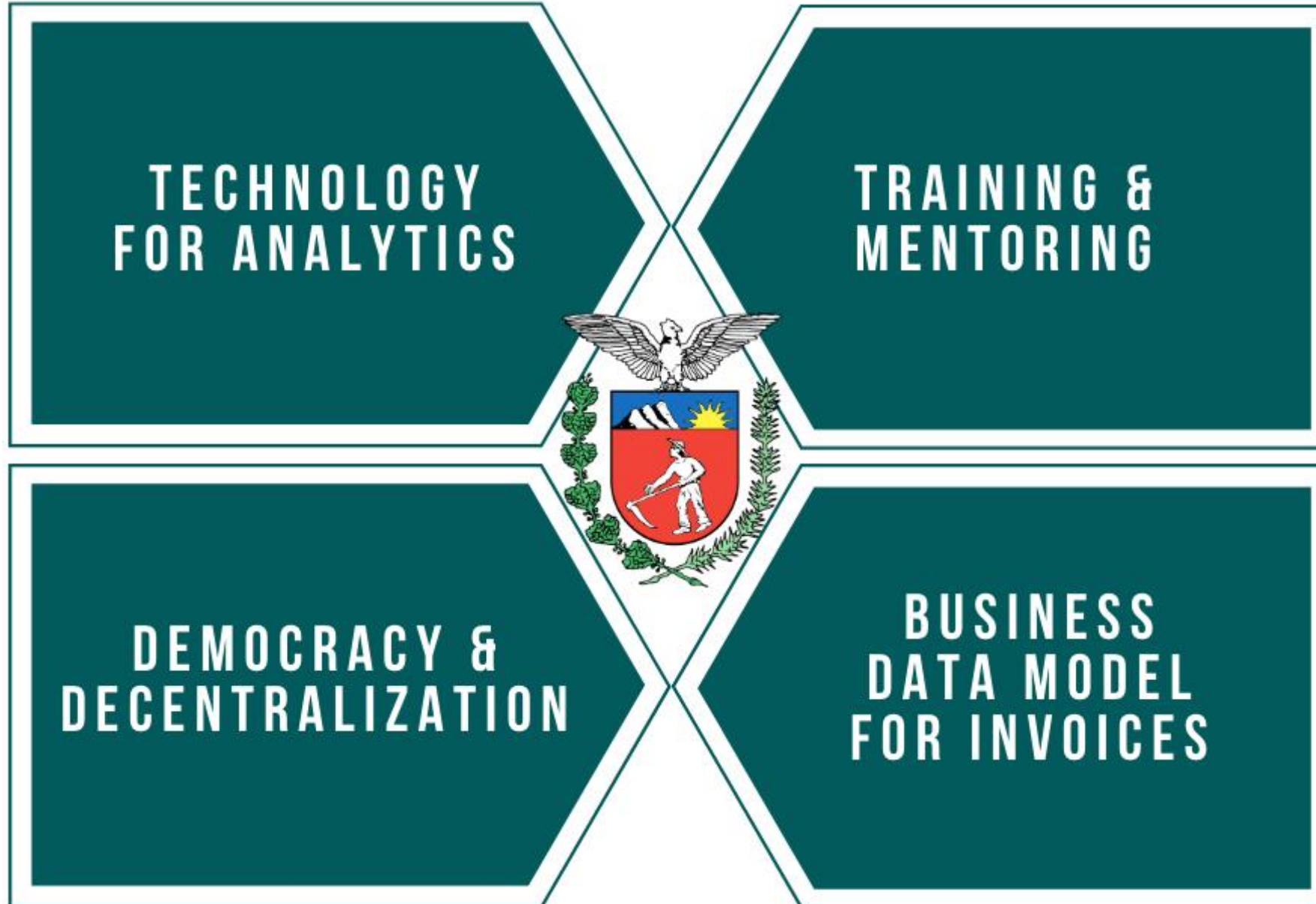
... how can a tax administration cope with this **data avalanche**?



Convênio 115
Telco&Energy



HOW PARANÁ STATE DEALT WITH THIS NEW WORLD



PARANÁ STATE TECHNOLOGY FOR ANALYTICS

How we cope with **345 MILLION** invoices/month.



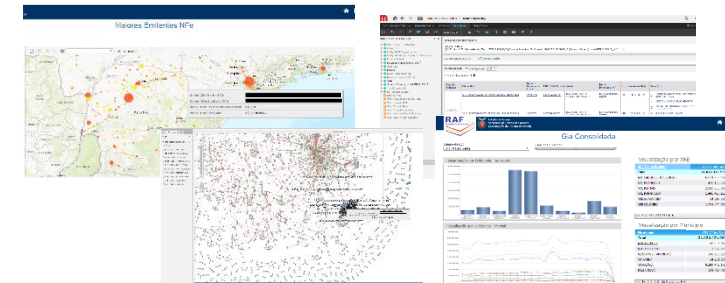
**Best
analytical
technologies**
according to
Gartner



Data Integration



Data Warehouse
teradata.



**Business Intelligence (BI)
& Data Discovery**



ALL tax auditors have
TOTAL access to **ALL**
data, with **NO**
restrictions...



This was a **HUGE**
cultural change



...and we keep a
COMPLETE LOG of
ALL database
queries.






BIG BROTHER



IS WATCHING YOU

DECENTRALIZATION OF DATA ANALYSIS

We have a **self service analytics**: our tax auditors **create their own reports and analysis.**






 RAF - DW > Meus relatórios > !Notas Glauco e Cristiane

INÍCIO DO RELATÓRIO FERRAMENTAS DADOS PLANILHA FORMATO

OBJETOS DO RELATÓRIO ? x

- CFOP
- CNPJ Raiz (Remetente)
- CNPJ/CPF (Destinatário NF)
- CNPJ/CPF (Remetente NF)
- Chave de Acesso
- Data de Emissão
- Descrição do Item
- Inscrição Estadual (Destinatário)
- Inscrição Estadual (Remetente I)
- Localização Geográfica (Remete
- Modelo
- Município (Remetente NF)
- Município (Destinatário NF)
- NCM
- Nome (Destinatário NF)
- Nome (Remetente NF)
- Nome / Nome Empresarial (Ren
- Número do Documento Fiscal
- Número do Item
- Sistema Origem (1-Nfe, 2-EFD,
- Situação Tributária ICMS
- Tipo de Operação (Entrada/Saíd
- UF (Destinatário NF)
- UF (Remetente NF)
- Quantidade Comercial do Item
- Valor ICMS do Item
- Valor Total do Documento Fisca
- Valor Total do ICMS
- Valor Total do Item
- Valor Total dos Produtos
- Valor Unitário Comercial Item
- Valor do Desconto do Item

32 itens encontrados

OBJETOS DO RELATÓRIO

- TODOS OS OBJETOS
- OBJETOS MDX
- OBSERVAÇÕES
- RELATÓRIOS RELACIONADOS

DETALHES DO RELATÓRIO

Filtro do relatório:
 ({Data de Emissão} (ID) >= 1/1/2016) E (((CNPJ/CPF (Destinatário NF)) (ID) = 87581833968 OU 2448893764) OU ((CNPJ/CPF (Remetente NF)) (ID) = 87581833968 OU 2448893764))

FILTRO DE EXIBIÇÃO O filtro está vazio. + Adicionar condição ✓ Aplicar alterações automaticamente

PAGINAR POR: Tipo de Operação (Entrada/Saída): Saída Sistema Origem (1-Nfe, 2-EFD, 3-CV115, 4-CT-e, 5-NFC-e): NF-e

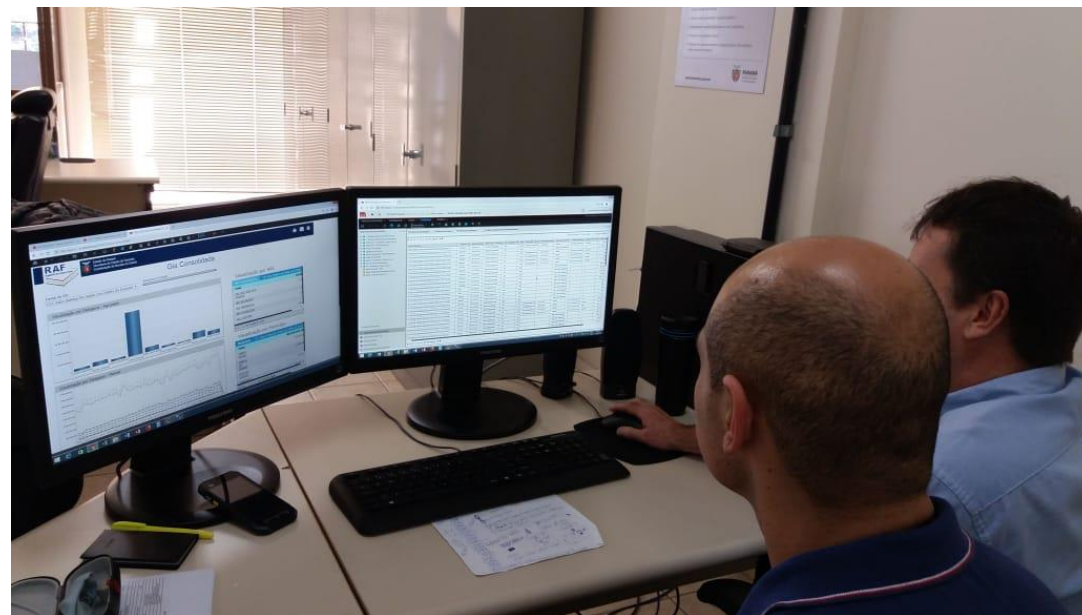
Data de Emissão	Chave de Acesso	Modelo	Número do Documento Fiscal	CNPJ Raiz (Remetente)	CNPJ/CPF (Remetente NF)	Inscrição Estadual (Remetente NF)	Nome (Remetente NF)	Município (Remetente NF)	CFOP	NCM
4/5/2018	35180561365284017007550010203738251202068135	55	20373825	61365284	61365284017007	241049966111	SARAIVA E SICILIANO S/A	CAJAMAR	6108	VENDA DE MERCADORIA ADQUIRIDA OU RECEBIDA DE TERCEIROS, DESTINADA A NÃO CONTRIBUINTE
11/4/2018	114/2018	55	11491896	19791896004602	1070110055	568	SUPERGASBRAS ENERGIA LTDA	ARAUCÁRIA	27111910	GÁS LIQUEFEITO DE PET (GLP)
22/3/2018	22/3/2018	55	2667763	12667763000250	82927561	568	TP-LINK TECHNOLOGIES CO. LTD.	PARANÁ	85078000	OUTS.ACUMULADORES E
19/3/2018	41180301438784001098550060000058701996614793	55	5870	1438784	1438784001098	9024079870	Leroy Merlin Cia Brasileira de Bricolagem	CURITIBA	5102	VENDA DE MERCADORIA ADQUIRIDA OU RECEBIDA DE TERCEIROS
9/3/2018	41180301438784001098550060000058821115485404	55	5882	1438784	1438784001098	9024079870	Leroy Merlin Cia Brasileira de Bricolagem	CURITIBA	5102	VENDA DE MERCADORIA ADQUIRIDA OU RECEBIDA DE TERCEIROS
20/2/2018	20/2/2018	55	171507	61365284	61365284017341	103979632	Saraiva e Siciliano S/A PontoCom NE (613)	SALVADOR	6108	VENDA DE MERCADORIA ADQUIRIDA OU RECEBIDA DE TERCEIROS, DESTINADA A NÃO CONTRIBUINTE
12/2/2018	12/2/2018	55	147478102116	12543006000194	147478102116	107	Microtexteis Ltda	SÃO PAULO	85444200	OUTS.CONDUTS.ELÉTS.T <=1000V,C/PEÇAS DE COI



September 2020:
 280 tax auditors
 created/executed
 over 3,000 reports
 resulting in more
 than 35,000 queries.

They have easy and
 fast access to all
 electronic invoices,
 including details
 from the items
 sold/purchased.

We launched a broad BI training & mentoring program focused on solving practical problems.



Useful BI: more than 300 tax auditors were (and still are) trained and mentored in how to use invoices data in our MicroStrategy BI to tackle real, concrete tax enforcement issues they face.



ANALYTICAL APPROACH: THE INTEGRATION OF INVOICES

**We created an
electronic invoice
analytical data
model totally
integrated and
business oriented.**

All different invoices (NF-e, NFC-e, CT-e, CV115, EFD...)...

INVOICE			

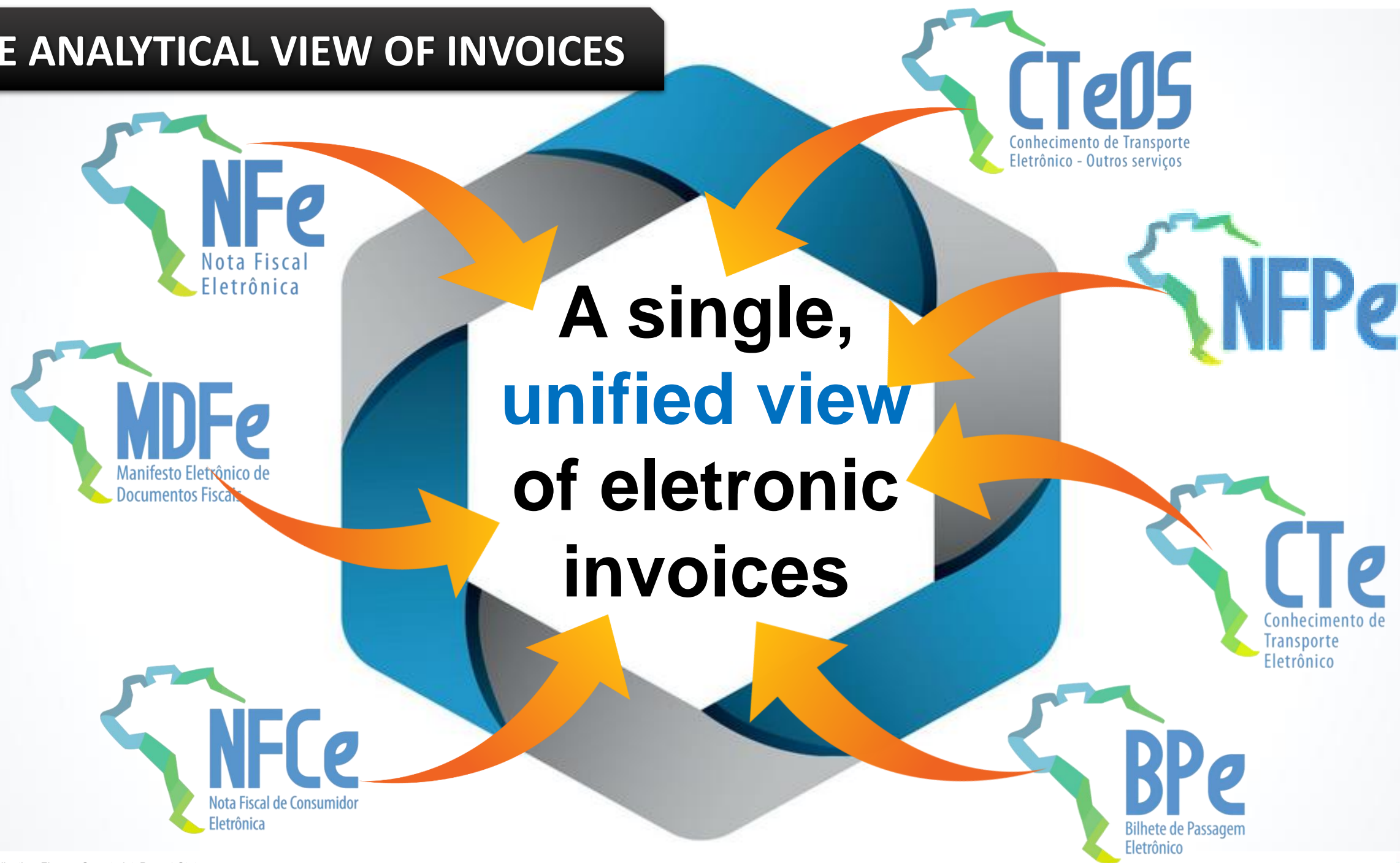
INVOICE PRODUCT (ITEMS)			

INVOICE TAXES			

INVOICE PRODUCT TAXES			

**... are integrated in our analytical
database in the SAME TABLES.**

THE ANALYTICAL VIEW OF INVOICES



CHALLENGES

→ YOU NEED A **TEAM** TO KEEP ANALYTICS RUNNING

- It took us a while to consolidate an **internal team** of tax auditors dedicated to the technology side of analytics.
- We have difficulty to bring in a team from our public IT company to help us out with the development of our analytics.



→ IT'S TOUGH TO **INTEGRATE** DATA

- Building an integrated view of electronic invoices is **very burdensome**.

→ THE **HUNGER** FOR NEW DATA

- The **never ending scope**: there's always a new type of invoice or new data from the old ones to be integrated: it never stops!

→ PEOPLE DON'T TAKE **FULL ADVANTAGE** OF OUR TECHNOLOGY

- It's a real challenge to make our tax auditors rethink the way they work to **fully take advantage** of our state-of-the-art analytical technologies.

BUSINESS OUTCOMES

Usefulness

“the most useful tool ever made available to tax auditors”

Accessibility

“We finally have quick access to all electronic invoices data”

Efficiency & Completeness

“Tax audits are faster and more complete”

Volume

“It made possible tax audits on taxpayers with large volumes of data”

We could show some numbers on how we believe analytics on electronic invoices helped to increase tax revenue... but we'll let our tax auditors speak for themselves:



Availability

“The sky is the limit to how we can work with the available data”

Easy of Use

“It's very, very easy to use the data”

Speed

“It allows quick analysis of inconsistencies in taxpayers data”



Analytics in the Age of Electronic Invoicing and Digital Bookkeeping

The Paraná State Tax Administration Experience

Thank You!

agaa@sefa.pr.gov.br