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Tax Intelligence System

Test Drive Introduction

HMX Corporation/ 2021

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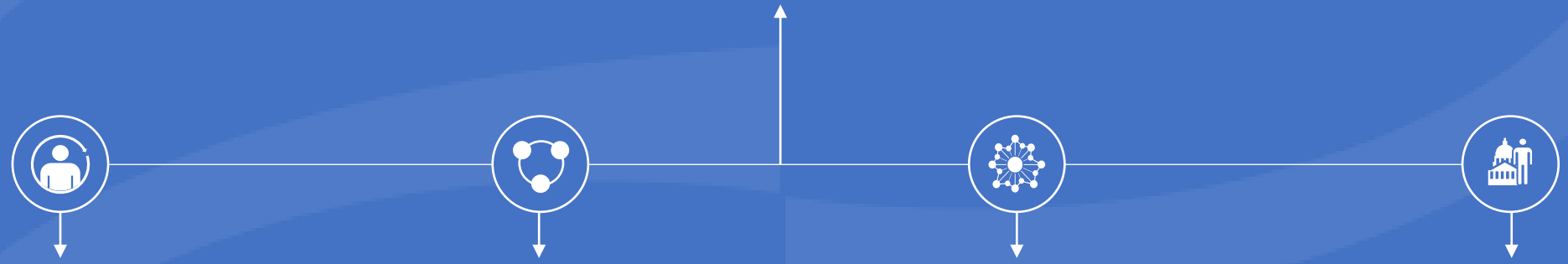
HMX Tax Intelligence System

How can Situational Reasoning help me with tax compliance issues?

The HMX Tax Intelligence test drive enables you to explore the many ways situational decision support improves tax law compliance through monitoring of transactions, detection of non-compliance, and learning of new non-compliance patterns.



GOAL-DRIVEN

Tax Authorities focus on the goals that must be achieved to maintain and enhance compliance and creating a fair business environment…

SITUATIONAL

Tax Authorities satisfy their goals through a process of assessing situations, like non-compliance and other important patterns of behavior in the tax-paying community….

LEARNING

Tax Authorities continually learn new patterns of behavior, relying on historical and real-time data as well as their own expertise to build a better knowledge base…

DECISION SUPPORT

New capabilities enhance organizational decision support in multiple ways including case management, reporting, tracking, auditing, automated bots …

Let's consider the ways to benefit from Tax Intelligence

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TAX INTELLIGENCE SYSTEM

Detailed Walkthrough

Microsoft

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Log in

Log in with your Microsoft email address.

Free 30-day trial.

Overview

Describes the different organizational roles in a **Tax Authority** benefitting from Tax Intelligence, from **Managers** to **Auditors** and the **Taxpayer** community.

Case Management & Fraud Dashboards

Managers apply the **Case Management Dashboard** to review tax revenues and tax filings flagged by auditors.

Auditors set-up follow-up processes with owners, view the number of **incompliance issues cases** reported each month and develop treatments for each issue to move them to resolution.

Auditors use the **Fraud Dashboard** to spot potential areas of incompliance, see how Tax Authority goals for fairness and revenue capture are met by configuration of incompliance situation-rules, and assess the ongoing effectiveness of these rules.

Real-time Business Intelligence

Auditors view details of tax transactions and analytics in monitoring dashboards, which are updated in real time to reflect current conditions in a **Situation Report** focused on meeting Tax Authority goals.

Furthermore, when Auditors want to review compliance effectiveness, a **modelling tool** is available for insights on taxpayer segmentation.

Sales Suppression Use Case

Tax Authorities in many jurisdictions are concerned about **sales suppression** to create a fair business environment and capture lost tax revenue.

Auditors and other tax authorities use **visualizations** to see trends develop in real-time.

Learning from Tax Data

New patterns in vendor behavior occur with changing business models and economic conditions.

Incompliance patterns continually shift and move, and **Big Data** amplifies the problem of finding patterns.

Technical users apply Tax Intelligence to **detect new patterns**.

About & More

Learn more about **Situational Reasoning** at HMX and how **Tax Intelligence** can help you.

Meet the Team

Tax Officials face many challenges

The team challenges are

- Gaining insight into tax returns
- Maintaining a fair business environment
- Eliminating fraud
- Forecasting tax revenues
- Sharing knowledge
- Creating strong and resilient government

The Team

Managers, Auditors, Analysts

Tax administration teams want solutions that provide insights into the overall collection process, risk assessments, case management and decision support that enhances the the performance of entire team.

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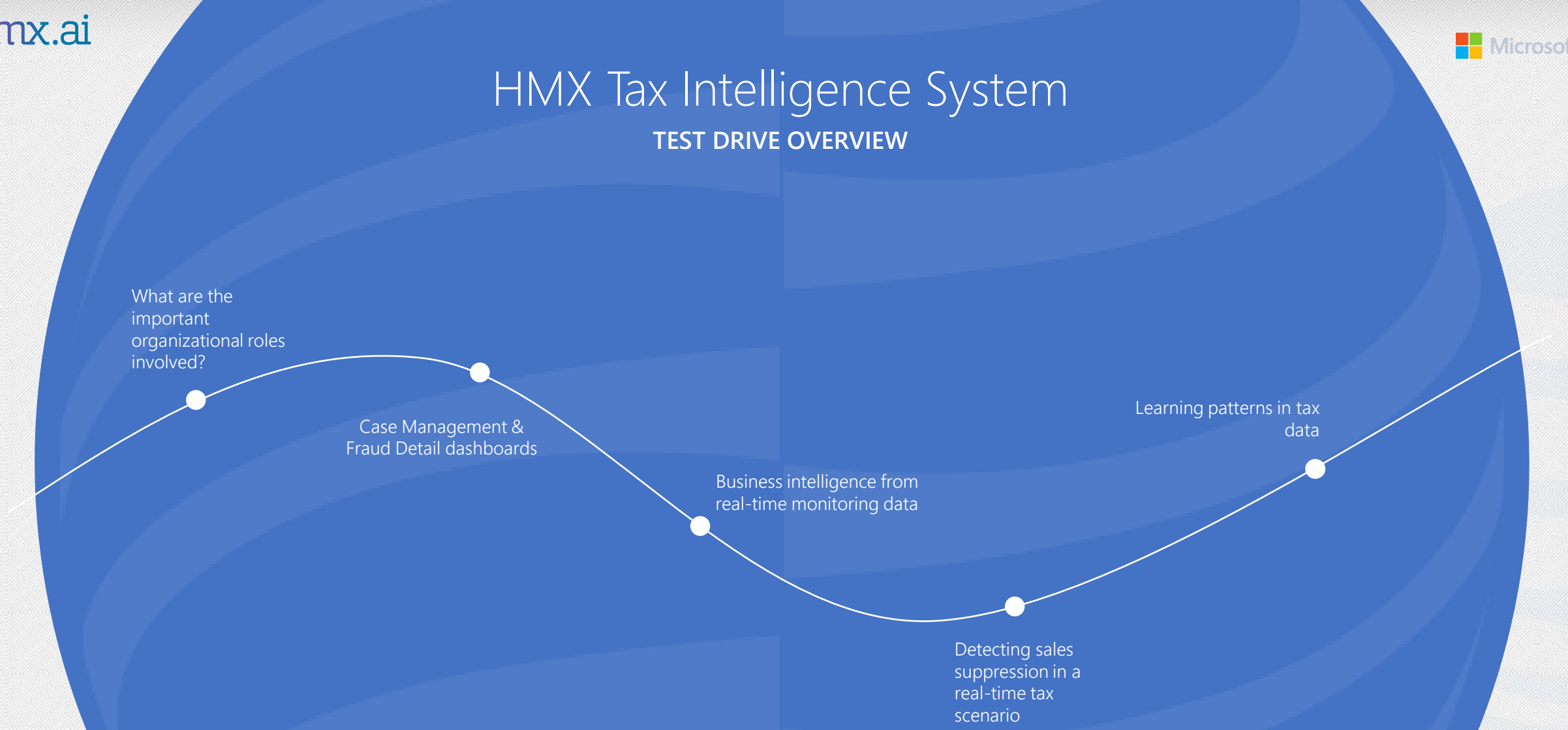
TEST DRIVE OVERVIEW



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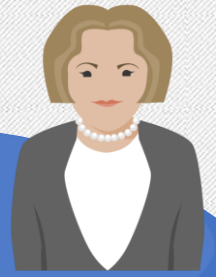


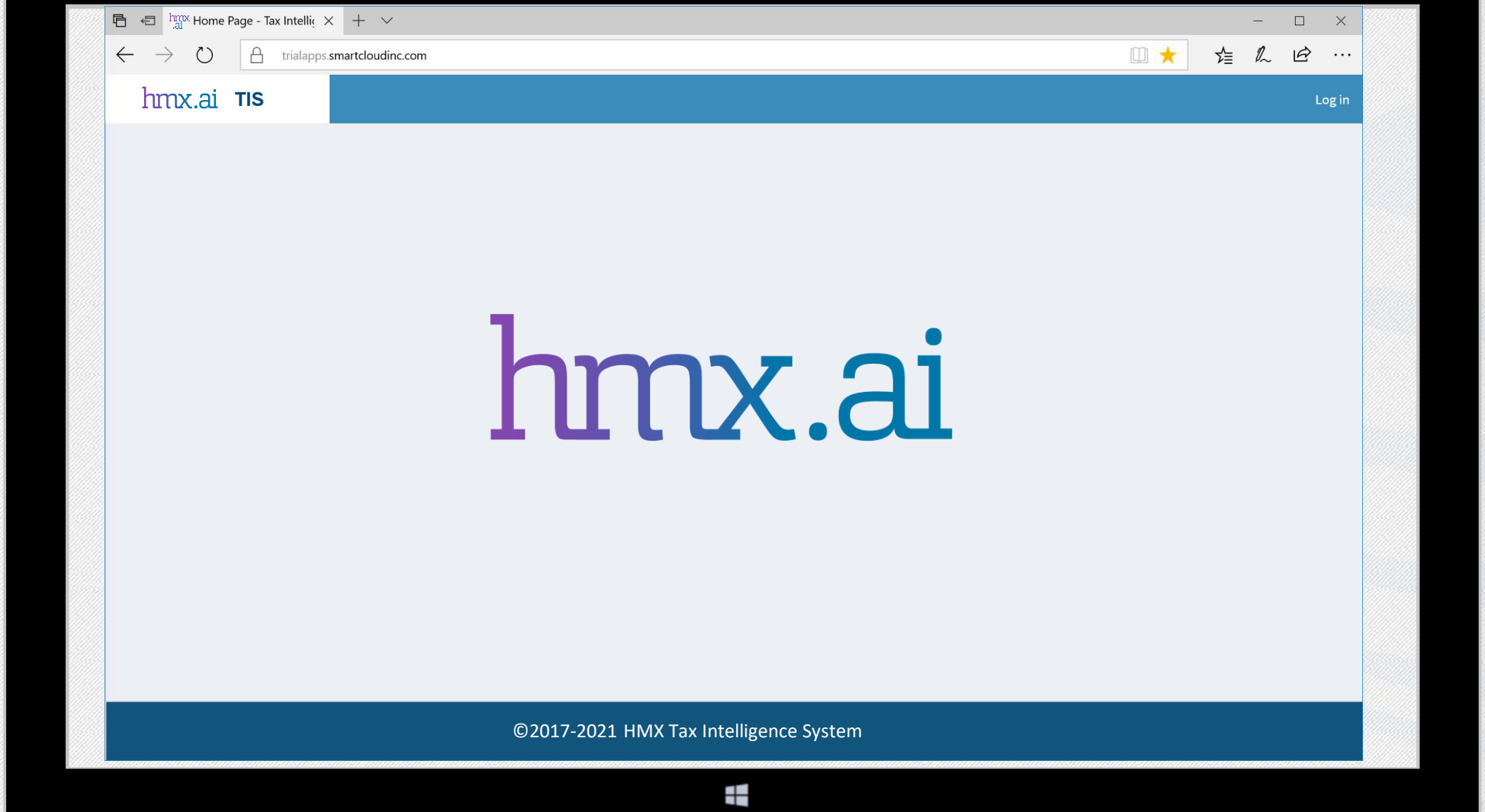
Margaret, Tax Official

Trial Test Drive
log-in

Opens with a description of roles

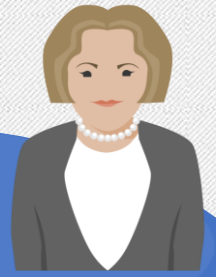
Accesses the dashboards

Identification



Identification — Trial access

next >



Margaret, Tax Official

Trial Test Drive log-in

Opens with a description of roles

Accesses the dashboards

Home Page - Tax Intelli

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Hello mbarnett@smartcloudinc.com! Log off

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Other regions & international

Principal administrative districts share knowledge.

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eGov

Federal Tax Office

Strong and resilient governments rely on fair and efficient tax collection that is citizen-centric.

The SmartCloud Tax Intelligence trial software enables you to explore the many ways *situational decision support* improves tax law compliance through monitoring of transactions, detection of incompliance, and learning of new incompliance patterns.

Regional Tax Office

Managers want essential data, increasingly with updates in real-time.

Tax Auditors

Tax Auditors need tools to target only noncompliance cases and data that supports their mission.

Several tax authority organization roles benefit from intelligent situational decision support;

- Regional & Federal Tax Office Managers,
- Tax Auditors and
- Vendors.

Vendors

Vendors need an equitable business environment to succeed, and transparency to increase trust and voluntary compliance.

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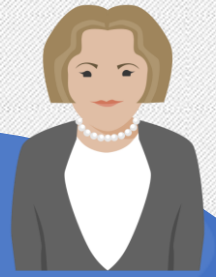

Margaret, Tax Official

Opens with a description of roles

Accesses the Tax Dashboards

Access Fraud Dashboard

Tax Intelligence | *The future of Tax*

Home > Dashboards

Margaret

The Tax Dashboard provides Tax Officials with a high-level view of activities, audit personnel, and tax revenue related to compliance - in real-time where available.

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Hello Log off

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Tax Authority Managers Tax Dashboard

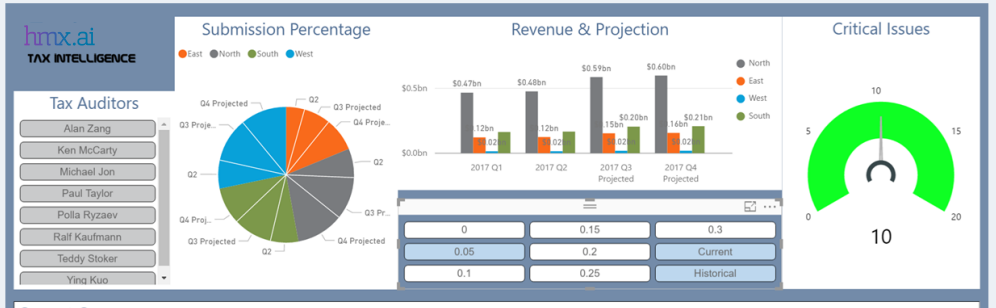
Challenges include;

- Gaining insight on revenue
- Identifying fraud
- Forecasting revenue
- Preventing fraud

Click on the Tax Auditor list to view their cases.

Ctrl-click numbers in the middle center to view impact on Tax Revenue Projection.

Numbers reflect tax authority level of compliance monitoring (0=none, 0.3=extensive)



Current Cases

CaseID	VendorName	Tax Due	Tax Due Date	VAT Due	Status	Auditor
C-169201	Don's Resturant	$53,914	Saturday, July 15, 2017	$48,559	Final review	Ralf Kaufmann
C-269817	Trioelectric Club	$98,468	Saturday, July 15, 2017	$46,567	In progress	Alan Zang
C-320098	DoubleFaux	$26,701	Saturday, July 15, 2017	$13,262	Flagged for review	Michael Jon
C-341479	Apzatex Mexican	$20,989	Saturday, July 15, 2017	$14,886	In progress	Polla Ryzaev
C-438770	Silicon FaseOff Hockey Pub	$38,186	Saturday, July 15, 2017	$23,119	In progress	Paul Taylor
C-466881	Flextrans Autobar	$82,577	Saturday, July 15, 2017	$80,180	In progress	Paul Taylor
C-667139	Drilltaxon	$14,511	Saturday, July 15, 2017	$14,249	Final review	Teddy Stoker
C-693791	Kandax Klub	$52,040	Saturday, July 15, 2017	$17,928	Flagged for review	Paul Taylor

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Tony, Tax Auditor

Accesses the Tax Dashboards

Access Fraud Dashboard

Real-time monitoring of sales suppression

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Home > Dashboards

New non-compliance data **pending for your review.**

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Tax Auditor
Fraud Dashboard

Challenges include;
- Meeting audit goals/targets
- Assessing fraud situations
- Fairness in audit processes

The Auditor's goals align with *situations* relevant to goals.

Real-time transaction rules assess these situations. Rules have parameters that impact effectiveness.

Click on Goal 1). a). to see the situation for this goal.

Click on rule Parameter values to see impact on rule effectiveness and revenue capture.

The alert limit for the Cash-to-Credit ratio parameter impacts Revenue Capture

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Goal	Situations
Goal: Promote a fair business environment.	Taxi electronic sales suppression
1). Discourage sales suppression.	POS-specific sales suppression
a). Monitor sales suppression.	Non-specific sales suppression
b). Look for new sales suppression patterns	Misallocation
c). Assess the return from investigative costs.	Last call sales suppression
2). Identify new tax evasion trends.	Geo-clusters
a). Determine if vendors are underreporting alcoho	Device disconnected
3). Detect system anamolies	Audit review efficiency
a). Determine if vendor is reporting sales reliably.	Audit revenue efficiency

Cash to Credit Ratio

Parameter: 0.05, 0.1, 0.15, 0.2, 0.25, 0.3

Rule Effectiveness

Projected Revenue Capture

Current Cases

CaseID	VendorName	Status	Auditor	Situation
C-169201	Don's Resturant	Final review	Ralf Kaufmann	2
C-269817	Trioelectric Club	In progress	Alan Zang	3
C-320098	DoubleFaux	Flagged for review	Michael Jon	1
C-341479	Apzatex Mexican	In progress	Polla Ryzaev	9
C-438770	Silicon FaseOff Hockey Pub	In progress	Paul Taylor	8
C-466881	Flextrans Autobar	In progress	Paul Taylor	3

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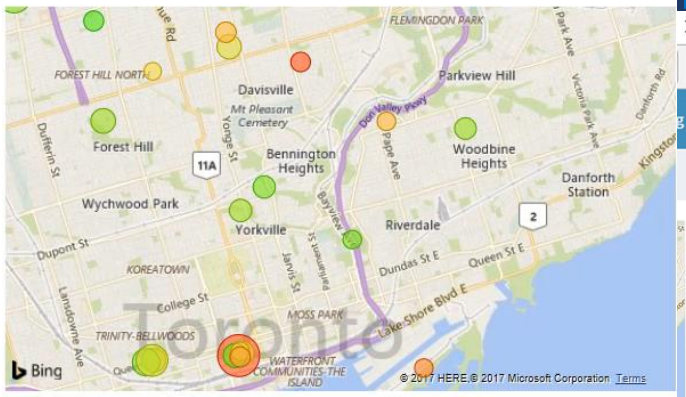
5/21/2017 6:00:00 AM

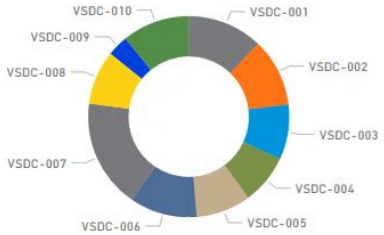
VendorName	Cash2Credit 4hr MA	First VSDC	Receipt Total	Cash_Sales
Apzatex Mexican	0.33	VSDC-010	$2,058	$517
Bar Zap	0.63	VSDC-003	$1,884	$726
Basedox Winery	0.38	VSDC-005	$2,637	$721
BetaBlock Bar	0.17	VSDC-003	$2,177	$318
BioCity Bar	0.10	VSDC-004	$7,336	$696
Daltfax Wine Bar	0.42	VSDC-005	$4,555	$1,350
Dany Dex Pub	0.70	VSDC-007	$1,573	$647
Don's Resturant	0.25	VSDC-004	$1,565	$313



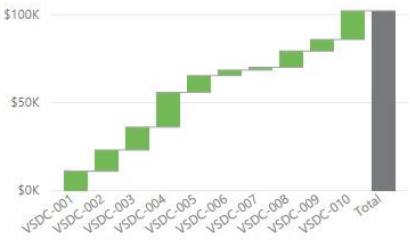
Apzatex Mexican | Bar Zap | Basedox Winery | BetaBlock Bar | BioCity Bar | Daltfax Wine Bar | Dany Dex Pub | Don's Resturant | DoubleFa... | Drilltaxon | Faselax Resturant | Fintrans Alternativ... | Flextrans Autobar | Ganz SanFran

Non-compliance

Cash:Credit by VSDC



Cash and Credit Sales by VSDC



VSDC

- VSDC-001
- VSDC-002
- VSDC-003
- VSDC-004
- VSDC-005
- VSDC-006
- VSDC-007
- VSDC-008
- VSDC-009
- VSDC-010

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Tony, Tax Auditor

Access the Fraud Dashboard

Real-time monitoring of sales suppression

Learning new patterns from tax data

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Tony

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Hello Log off

Use Power BI's interactive features to change dates and view cash-to-credit ratios reported by different vendors.

Tax Auditor
Detect Sales Suppression

The display at right is a *situation report* with details on situations of interest to Auditors.

Click on a vendor name at center-top to display transactions and cash-to-credit information for that vendor.

Several vendors are connected to a Virtual Sales Data Collector (VSDC). Click on a VSDC to see the VSDC's vendors and transactions.

For one of the non-compliant vendors identified on the previous display, use the visual interactions on this display to confirm low cash-to-credit ratio for the vendor.

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VendorName	First VendorID	First VSDC	Cash2Credit 4hr MA	Min of VendorType
Silicon Inn	V-30826	VSDC-004	0.18	4
Vento Quo Resturant	V-29621	VSDC-008	0.22	2
QVO Holding	V-29118	VSDC-010	0.24	4
StrongBox Bank Bar	V-27715	VSDC-010	0.25	2
Fintrans Alternative Norweigan	V-34344	VSDC-001	0.30	1
Toughlane Pub	V-27312	VSDC-004	0.31	4

Apzatex Mexican | Bar Zap | Basedox Winery | BetaBlock Bar | BioCity Bar | Daltfax Wine Bar | Dany Dex Pub | Don's Resturant | DoubleFa... | Drilltaxon | Faselax Resturant | Fintrans Alternativ... | Flextrans Autobar | Ganz SanFran

VSDC-001 | VSDC-002 | VSDC-003 | VSDC-004 | VSDC-005 | VSDC-006 | VSDC-007 | VSDC-008 | VSDC-009 | VSDC-010

VendorName	FoodSubtotal	FoodTax	DrinkSubtotal	DrinkTax	Receipt Total	Cash2Credit 4hr MA
Apzatex Mexican	$76,741	$4,029	$23,483	$1,585	$125,884	0.44
5/21/2017 6:00:00 AM	$1,265	$66	$374	$25	$2,058	0.33
5/21/2017 7:00:00 AM	$1,111	$58	$336	$23	$1,818	0.35
5/21/2017 8:00:00 AM	$646	$34	$174	$12	$1,029	0.35
5/21/2017 9:00:00 AM	$724	$38	$258	$17	$1,233	0.41
Total	$5,668,071	$297,572	$3,855,116	$260,224	$11,985,621	0.42

May 21 2017 - May 28 2017

Cash2Credit Cash2Credit 4hr MA

Cash_Sales Credit_Sales

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Linda, Tax Analyst

Real-time monitoring of sales suppression

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Get more information on HMX Tax Intelligence

Tax data in this case show a **pattern of missing transactions**;

- at a certain time of day,
- by a group of vendors located close together and owned by the same parent company.

The pattern suggests either deliberate **sales suppression** or an equipment problem.

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Linda

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TAX INTELLIGENCE

5/23/2017 6:00:00 AM

Vendor Clusters Cluster1 Cluster2 Cluster3 Cluster4 Cluster5 Cluster6

East West North South

0 20 40 60 80

Count of Recipts

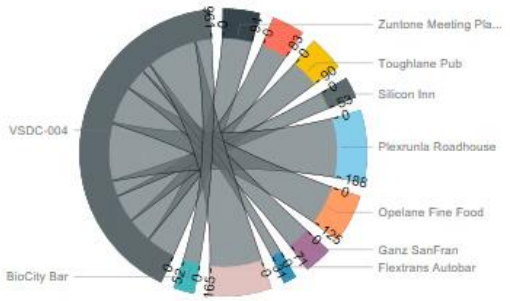
East West North South

10 0 10 20 30 40 50 60 70 80

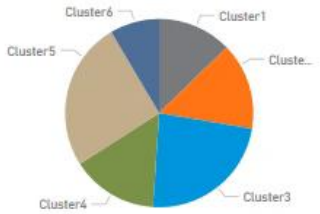
Count of Recipts

VSDC

VSDC-001 VSDC-002 VSDC-003 VSDC-004 VSDC-005 VSDC-006 VSDC-007 VSDC-008 VSDC-009 VSDC-010



Count of Owner by Vendor Clusters



VendorName	First Owner	First VSDC
Opelane Fine Food	Badboy Leisure Ltd.	VSDC-004
Temptra Disco	Battleground Management	VSDC-002
Trioelectric Club	Bermuda Triangle Group	VSDC-009
Basedox Winery	Bhatti & Zahid	VSDC-005
Suncane Brazilian	BlackBird Food Ltd.	VSDC-002
Apzatex Mexican	Blend Ltd.	VSDC-010
The Dingzone	Brockly Bread Company	VSDC-001
Julio's TinSunZap	Dorothy Day Lewis	VSDC-007
Faselax Resturant	E. Sahar	VSDC-002
Plexrunla Roadhouse	Elizabeth Ak	VSDC-004
Pluscany Italian	Elizabeth Ak	VSDC-006

Sales Suppression | Learning | More Info

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Linda, Tax Analyst

Real-time monitoring of sales suppression

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Use Power BI's interactive features to change dates and vendors to identify those not reporting transactions.

Tax Auditor
Detect System Anomalies

A goal of the tax authority is to detect system anomalies that might indicate fraudulent practices.

Transaction counts over time can indicate disconnected monitoring devices.

On the previous display a cluster of four vendors reporting zero transactions was detected during a period of several hours.

Use visual interactions to confirm that the 4 vendors in the cluster have a gap in reported transactions during the same time period.

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VendorName	First VendorID	First Owner	First VSDC	Min of VendorType
Apzatex Mexican	V-33031	Blend Ltd.	VSDC-010	4
Bar Zap	V-28817	T. Jackson	VSDC-003	3
Basedox Winery	V-26003	Bhatti & Zahid	VSDC-005	1
BetaBlock Bar	V-25700	Smash and Grab Corporation	VSDC-003	1
BioCity Bar	V-31528	XOR Corp.	VSDC-004	2
Daltfax Wine Bar	V-25801	T&W Pearson	VSDC-005	1
Dany Dex Pub	V-33132	T&W Pearson	VSDC-007	4

Apzatex Mexican | Bar Zap | Basedox Winery | BetaBlock Bar | BioCity Bar | Daltfax Wine Bar | Dany Dex Pub | Don's Resturant | DoubleFa... | Drilltaxon | Faselax Resturant | Fintrans Alternativ... | Flextrans Autobar | Ganz SanFran

VSDC-001 | VSDC-002 | VSDC-003 | VSDC-004 | VSDC-005 | VSDC-006 | VSDC-007 | VSDC-008 | VSDC-009 | VSDC-010

VendorName	FoodSubtotal	FoodTax	DrinkSubtotal	DrinkTax	Receipt Total	Transaction Count
Apzatex Mexican	$149,416	$7,844	$45,838	$3,094	$245,244	4,706
5/21/2017 6:00:00 AM	$1,239	$65	$440	$30	$2,110	43
5/21/2017 7:00:00 AM	$889	$47	$269	$18	$1,454	30
5/21/2017 8:00:00 AM	$1,219	$64	$353	$24	$1,974	35
5/21/2017 9:00:00 AM	$1,041	$55	$332	$22	$1,724	35
Total	$9,956,026	$522,688	$6,546,067	$441,864	$20,767,063	192,034

May 21 2017 - May 28 2017

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Sales Suppression | Learning | More Info

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Tax Authority Team

Learning new patterns from tax data

Get more information on Tax Intelligence and how HMX applied Goal-Directed Task Analysis to focus AI capabilities on supporting your Tax Authority's mission.

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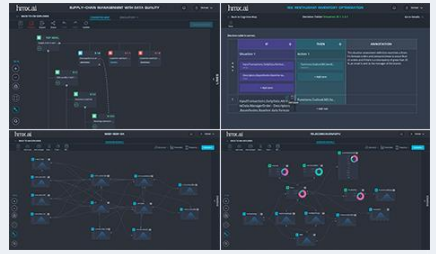
Strengthening the partnership between human experts and AI

At HMX, we believe human experts, augmented by machine learning, make better decisions than either can make alone. To bring this human-machine partnership to the market we have opened the AI "black box" with explainable artificial intelligence (XAI).

Accelerating detection of fraud, eliminating corruption with CRex™ explainable AI



Our XAI solutions go beyond traditional pattern matching, profile segmentation and rules processing to detect fraud, providing explainability that makes AI actionable in real-world compliance.

Visit us at hmx.ai or email us at info@hmx.ai.

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