

Towards Pervasive GRC

Innovations from MetricStream labs

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MetricStream Labs - Vision

“MetricStream Labs designs and prototypes new applications and methodologies leveraging the *latest Technology trends such as Internet of things, Social Media, Big data* etc. which will define the next wave of Governance, Risk and Compliance requirements across Global organizations.”



Digitalization of data (Big Data)



Hyper connectivity



Social Media



Cloud Computing

Key MetricStream Lab Initiatives



Social Media Risk & Compliance



Spreadsheet Governance

Towards Pervasive GRC



Social Media Risk & Compliance

Data is new Oil*

It needs to be

- Explored
- Extracted
- Refined
- Deployed
- Profiteered



Social Media is Pervasive...

More than 204 million
Email messages



48 hours of new
YouTube videos



\$272,000 spent on e-
commerce



684,000 bits of
content shared on



2 million+ Google
search queries



3,600 new photos
shared on Instagram



**EVERY
SECOND
OF EVERY
DAY**

Social Media- Key challenges

Velocity of Data

- One post, blog or video can create a high impact in a short span of time.

Volume of data

- User generated content is constantly increasing and expanding.

Variety of data

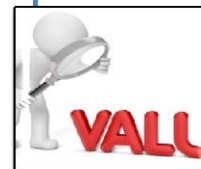
- Most of the new data being created is in formats like Video, Audio and Social Media posts.

Value of data

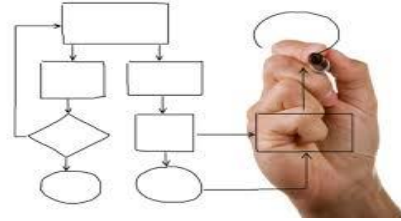
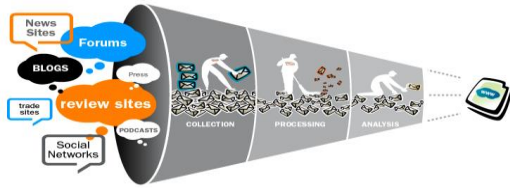
- Identifying the relevance and value of the information is a constant challenge.

Veracity of data

- Verification of the identity and credentials of author is a challenge



Social Media Risks - Key Challenge



How to
separate
Voice from
Noise?

How to
correlate
and
analyze?

How to
create
Actionable
Insights?

Key Use-cases for Social Media Risk

Reputation Risk

- Early detection of any product or organizational issue
- Mitigation before reputational damage

Supply Chain Risk

- Predicting & Managing Supply chain disruptions
- Putting early warning signs in place

Regulatory Intelligence

- Monitoring Social media comments on new rulings and changes
- Identify the key issues & changes and act fast

Reputation Risk Management

Identify the key data sources for gathering the Product Safety and quality feedback



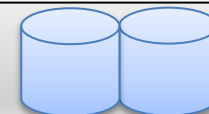
Social Media site Postings



Call center transcripts

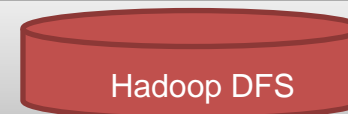


Support Emails



Internal data & reports

Aggregate & Process the data using Hadoop DFS and MapReduce framework

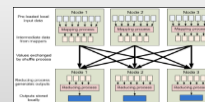
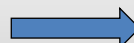


Store the complete data in a Distributed File system

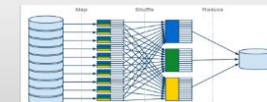
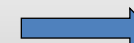
Detect the risks using natural language processing based rules, keywords and author profiles and influence



Create risk detection rules based on key words, repetition frequency & Author influence

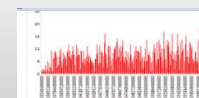


Analyze the product feedback data based on the rules on a real-time basis



Reduce the data to highlight the key product & brand reputation risks and their causes

Inform the relevant stakeholders through trend analysis reports and dashboards



Create trend analysis dashboards to highlight key product feedback categories and risks and causes highlighted based on the analysis

Supply chain Risk Management

Time		Position		Strength		Wind Probabilities			Wind Model
GMT	Lead	Lat	Long	Peak Wind	Cat	TS	Cat 1 or Above	Wind Field	
12 Oct 0:00	0 hrs	17.4 N	86.5 E	140 kts	4	Click Here	Click Here	Click Here	
FORECAST DATA									
Time		Position		Strength		Wind Probabilities			Wind Model
GMT	Lead	Lat	Long	Peak Wind	Cat	TS	Cat 1 or Above	Wind Field	
12 Oct 12:00	12 hrs	18.6 N	85.3 E	145 kts	4	To 32 hrs	To 32 hrs	Click Here	
13 Oct 0:00	24 hrs	20.0 N	84.1 E	150 kts	5	To 24 hrs	To 24 hrs	N/A	
13 Oct 12:00	36 hrs	21.8 N	83.1 E	85 kts	1	To 36 hrs	To 36 hrs	N/A	
14 Oct 0:00	48 hrs	23.5 N	82.3 E	30 kts	0	To 48 hrs	To 48 hrs	N/A	



Location: RAIN INTENSITY: WIND SPEED: OODHA
 HEAVY or VERY HEAVY 150-200mph Khosha HEA
 HEAVY 150-200mph Puri HEAVY or VERY HEAVY 150-200mph Bhukantnawa HEA
 HEAVY 150-200mph Nagabh HEAVY or VERY HEAVY 150-200mph Gubak HEAVY
 HEAVY 150-200mph ANEJHA PRAGDEE Hoshalpakaram HEAVY 80-120mph Neph
 HEAVY 85-120mph Shikalam HEAVY 85-120mph



Dan Sparks @GHA_Dan 14h
 My new blog focussing on the importance of DRR investments in the wake of Cyclone Phailin
shar.es/i480W via @Details



softwarebuzzer @softwareb... 15h
 Google Launched Missing Person Finder For Tropical Cyclone
buzzer.com/missing-013



Flood waters from Hurricane Sandy approach the LaGuardia Airport runways and taxiways today
www.fox.com @SMBdhr0



Bloomberg India news @B... 22h
 Cyclone Phailin delays India's plan to start production of rare earth elements to help boost supplies | bloom.bg/Hu7tSy

Trends predict Super Cyclone in India

90% of Manufacturing Plants impacted

Super Cyclone in India

90% of Manufacturing Plants impacted

Anticipate, Counter disruption with remedial plan and publish it

No supply till plants restored

News of disruption in supply

No supply till plants restored

Stock stable

Stock volatile



Advanced Rules Engine for Risk Detection

Showing 1 - 1 of 1 records

content	author
My bank account has been hacked AGAIN. Third time in one year. This time, someone STOLE the replacement card that was being sent BECAUSE OUR ACCOUNT HAD BEEN HACKED apparently activated it, then checked my balance at an ATM before wiping us out. WTF USAA? WTF .	Cat Haigler

Delete Group
 at least 2 contains DPSET_noun,UNAUTHORIZED_verb

Group: ORules
 Add Row Delete

Edit Risk Analyzer Rules
 Risk Name *
 Lack of Governance
 Select One
 Financial Risk
 IP Loss
 Information Security Risk
 Infrastructure Stability Risk
 Lack of Governance
 Litigation Risk
 Metrics Integrity Risk
 Personal reputation Loss
 Regulatory Risk

Categories
 WORD1 CATEGORY1
 WORD1 CATEGORY1
 WORD2 CATEGORY2
 WORD3 CATEGORY2
 WORD4 CATEGORY1
 WORD5 CATEGORY3

Map Re Select One

Group: NRules
 Add Row Delete Last Row Total Rows: 3 Pages: << 1 >> 1 of 1

Delete	Group	Clarification	Operation	Categories	Categories 2	Within
<input type="checkbox"/>	at least	2	appears with	NEGATIVE_none,NOT_none	HELP_none,POSITIVE_non	8
<input type="checkbox"/>	Select One	3	contains any	NEGATIVE_none,QUESTION_none,WARN_none,NOT_none		0
<input type="checkbox"/>	any	0	not contains all	APPRECIATE_none		0

Group: first last none at least %
 Add Row Delete Last Row Total Rows: 1 Pages: << 1 >> 1 of 1

Delete	Group	Clarification	Operation	Categories	Categories2	Within
<input type="checkbox"/>	first all last all	0	not contains all	APPRECIATE_none		0

Submit Cancel

Create Risk Ana.

Diagram illustrating text analysis components:
 SENTENCE
 WORD WORD WORD
 CATEGORY CATEGORY KIND
 Connectors AND OR

Ability to create complicated text analysis rules based on to facilitate real time text analysis and risk assesment.

Sample Analysis Reports

Detect risky content across articles and flag it for user to analyze and decide on future course of action.

Analyze risk content on each article and display risk assessment scores on each article for prioritization

Display Author information to allow user to gauge the author influence by the system score as well as other configurable parameters.

The screenshot displays the 'Workbench Form' interface. The main table lists articles with columns for Source, Metric, Score, and Author. The 'Score' column contains yellow boxes with the number '3'. A detailed view of an article is shown in a pop-up window, including the Article Id (561600027213600_93878416), Published Date, Author (Mohammed Akbar), and Article Content (Arabic text). The 'Decision Action' dropdown is set to 'Select One', and the 'Research Action' dropdown is set to 'Highlight Risk Content'. A profile card for 'Liz Threhouse' is also visible, showing 2 posts and a score of 0.

Source	Metric	Score	Author
	Reputation Risk	3	David Mon
	Reputation Risk	3	Corey Bur
	Reputation Risk	3	Corey Bur
	Reputation Risk	3	Taisir Eld
	Reputation Risk	3	Liz Thre
	Reputation Risk	3	Jesh
	Reputation	3	

Towards Pervasive GRC



Spreadsheet Governance

How Widely are spreadsheets used?



1 in 7 people

Over 1 billion people use Office. That's 1 in 7 people on the planet. (Source: Microsoft)

And how much in Business?

Spreadsheet Management
Not what you figured



Large New York bank (\$20+ trillion in assets).

- UDT Definition – User Defined Technology. Defined as Excel, Access, BI tools
- **Bank has an 25,000 UDTs** spread across all lines of business and geographies.
- The approximate rate of introduction of new UDTs to the bank IT landscape is about **5% YOY..**

Which option best describes the level your company utilizes spreadsheets to support business processes or financial reporting?

Votes received: 2,804

Heavy. We rely on spreadsheets for critical portions of the business 70.1%

Deloitte.

So What is the Problem?

- Spreadsheets are largely uncontrolled
- Confidential Information contained in these Spreadsheets can be shared with anyone
- Enterprise applications do not address the spreadsheet “problem”
- File-level solutions (SharePoint, Box, Dropbox) do not address the problem
- Spreadsheet control technology not incorporated into governance, risk and compliance (GRC) software



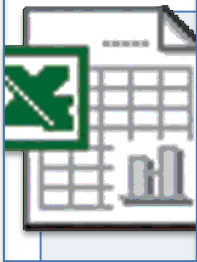
And if things go Wrong?

- A US utility company found in a lengthy spreadsheet formula that parentheses were out of place – **projected gains fell from \$200 million to \$25 million**
- Executives from a healthcare service provider admitted preparing a false spreadsheet for auditors that inflated assets, thus falsifying the company's worth – **earnings were overstated by at least \$3.5 billion**
- County of Bakersfield California overlooks, then finds, taxable property worth **\$1.26 billion based on spreadsheet errors**

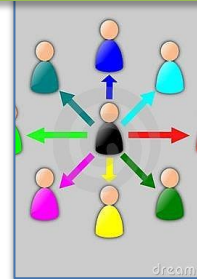


MetricStream Spreadsheet Governance

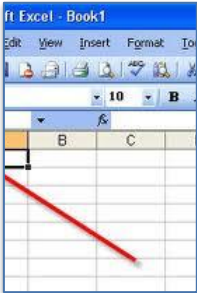
Enable organizations to create and manage business processes on spreadsheets leveraging the ease of Microsoft Excel over a Concurrent, Multi-user Collaboration and Audit-enabled environment



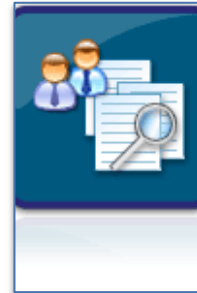
Ease of Microsoft Excel



Multi-user cell level collaboration



Cell level security and access control



Automatic Version Control & Full Audit Trail

Cell data Management

Sharing data & formulas

	Sales	Forecast	Prob of Forecast	Booked				
5	\$ 4,289,150			\$ 2,252,220				
6	Opportunity Name	Comments	Rep	Sales	Sales Stage	Sale	Close	Sales
7	A. Datum Corporatio	latest update	Rep1	\$ 130,000	Contract	100%	January	\$ 135,000
8	Analog Devices		Rep1	\$ 145,200	1-Opportunity	10%	February	\$ 14,520
9	Dundas Company		Rep1	\$ 162,500	2-Identified Need	25%	March	\$ 32,500
10	Harris Corp		Rep1	\$ 147,500	5-Spon	Boardwalk : Cell value changed from 141,000 to 145,200		\$ 44,250
11	Adventure Works		Rep1	\$ 148,000	3-Budg			\$ 59,200
12	Alpine Ski House		Rep2	\$ 175,000	2-Ident			\$ 43,750
13	Baldwin Museum		Rep2	\$ 149,000	5-Sponsorship	85%	July	\$ 126,650
14	choco sale		Rep5	\$ 135,000	1-Opportunity	10%	August	\$ 13,500
15	Blue Yonder Airlines	Boardwalk : Cell value changed from Looks good to latest update	Rep4	\$ 142,000	3-Budget Validated			\$ 71,000
16	City Power & Light		Rep4	\$ 172,500	4-Verbal Approval			\$ 16,500
1			Rep4	\$ 165,000	1-Opportunity			\$ 16,500
1			Rep3	\$ 155,500	6-Contract	100%	December	\$ 155,500

	Sales	Forecast	Prob of Forecast	Booked				
5	\$ 3,285,950			\$ 1,637,300				
6	Opportunity Name	Comments	Rep	Sales	Sales Stage	Sale	Close	Sales
7	A. Datum Corporatio		Rep1	\$ 130,000	Contract	100%	January	\$ 135,000
8	Analog Devices	Looks good	Rep1	\$ 141,000	1-Opportunity	10%	February	\$ 14,100
9	Dundas Company		Rep1	\$ 162,500	2-Identified Need	25%	March	\$ 32,500
10	Harris Corp		Rep1	\$ 147,500	5-Sponsorship	85%	April	\$ 44,250
11	Adventure Works		Rep1	\$ 148,000	3-Budget Validated	50%	May	\$ 59,200
12	Alpine Ski House		Rep2	\$ 175,000	2-Identified Need	25%	June	\$ 43,750
13	Baldwin Museum		Rep2	\$ 149,000	5-Sponsorship	85%	July	\$ 126,650
14	choco sale		Rep5	\$ 135,000	1-Opportunity	10%	August	\$ 13,500
15	Blue Yonder Airlines		Rep5	\$ 142,000	3-Budget Validated	50%	August	\$ 71,000
16	City Power & Light		Rep1	\$ 172,500	4-Verbal Approval	70%	October	\$ 155,250
1			Rep4	\$ 165,000	1-Opportunity	10%	November	\$ 16,500
1			Rep4	\$ 163,500	5-Sponsorship	85%	November	\$ 163,500
1			Rep3	\$ 155,500	6-Contract	100%	December	\$ 155,500

Boardwalk : Cell value changed from Looks good to latest update

Boardwalk : Cell value changed from 141,000 to 145,200

Boardwalk Communicator

MetricStream

info@boardwalktech.com
11/20/2013 9:46:54 AM
Forecast Table
Updates: done - here are my changes, pl

info@boardwalktech.com
11/20/2013 9:46:31 AM
Message: ok I will work on this now

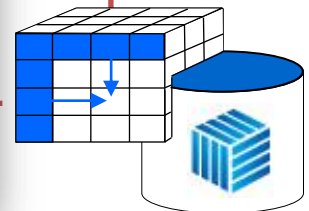
jb.kuppe@boardwalktech.com
11/20/2013 9:38:13 AM
Message: please make sure you update t

jb.kuppe@boardwalktech.com
11/20/2013 9:37:46 AM
Message: invited info@boardwalktech.cc

Type Submit Comment or Chat Message

Changes Changes Message Messages

Ready



Cell-Level Audit Trail/Change Management

The screenshot illustrates the process of accessing cell-level audit information in Excel. A context menu is open over a cell in a table, with 'Cell History' highlighted. An arrow points from this menu to a detailed audit trail window. Another arrow points from a specific cell in the table to the same audit trail window.

Sale Price	Q1 Units	Q2 Units	Q3 Units	Q4 Units	Year Total	Forecast Am
32	120	130	60	200	510	16,320
48	12		22	22	56	2,688
35	22	22			44	1,540
102	22			12	34	3,468
122	85	85			170	20,740
Boardwalk : jb.kuppe@boardwalktech.com, 2014-06-19 12:38:47.037 : Changed Value From 12 To 22						3,120
						6,336

Updated Value	Formula	Formula Updated	Updated By	Updated On	Comment
\$ 147,500		Y	admin@acme.com	01/26/2011 11:03 AM	Link export new table
\$ 155,000			rep1@acme.com	01/26/2011 11:06 AM	latest updates
\$ 165,000			rep1@acme.com	01/26/2011 11:24 AM	my changes
\$ 185,000			rep1@acme.com	02/24/2011 08:04 AM	my change
\$ 195,000			rep1@acme.com	02/25/2011 11:32 AM	my updates

MetricStream Spreadsheet Governance

Spreadsheet Workbench

Enterprise Spreadsheet Footprint

BU	Total Spreadsheets	Total Unique Users	Last Assessment ...	Overall Risk
Sales-NA	25	1505	01/09/2013	High
Sales-Partners	320	320	10/01/2014	High
Sales-APAC	12	24	01/06/2013	Medium
Sales-EU	25	1300	01/09/2013	High
Plant-ET	25	130	12/02/2014	Low
Plant-ME	19	210	15/02/2014	Low
Plant-TZ	23	210	01/03/2014	Low

Business Unit Spreadsheet

Spreadsheet	Created On	Owner	Number of...	Last Updat...	Total Chan...	Risk Score
NA-Forecast	02/03/2007	Jimmy H	34	02/09/2013	43	53
Cloud Revenue	01/02/2010	Karl K	33	01/02/2014	3	34
Cloud Costs	01/02/2010	VR	343	01/02/2014	34	32

Rule based cell / cuboid level risk analytics to arrive at score

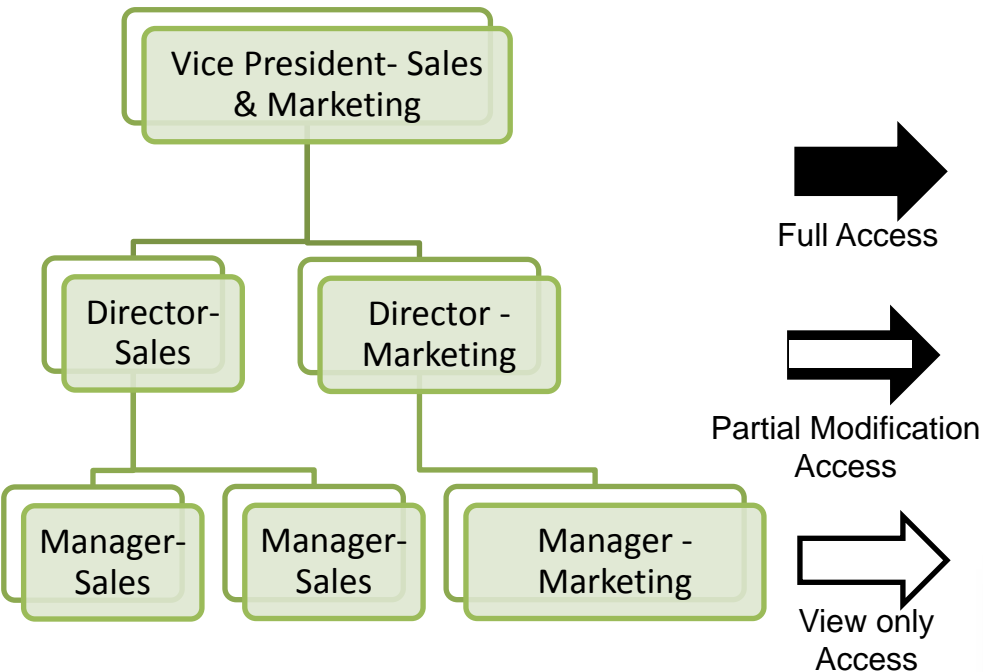
Change	Cell Location	Changed By	Approved By	Risk Contribution
343000 to 355000	Sheet2-G22	MM	None	15%
205000 to 208000	Sheet2-G35	MM	None	10%
RBS to R.B.S.	Sheet2-C10	MM	GK	9%
White-on-white	Sheet1-B22	MM	GK	5%

Summary Table:

BU	Total Spreadsheets	Total Unique Users	Last Assessment	Overall Risk
Sales NA	23	2000	12/04/14	Low
Sales Partners	18	4500	14/04/14	Low
Sales EU	35	8000	18/04/14	High
Sales ET	12	1200	20/04/14	Medium

Enabling a Multi-user, Concurrent and Hierarchy controlled Functionality with Automated Multi-level Consolidation of Data elements

Multi-level Access and Audit Control



Complete audit trail of changes across hierarchy

Table of updates from the screenshot:

Updated Value	Formula	Formula Updated	Updated By	Updated On	Comment
Request		Y	dmitry@metricstream.com	04/04/2013 04:14 PM	my changes
Problem			BOARDWALK_INT_EGRATIO	04/04/2013 04:22 PM	supermerge TAB_INSERT_UPDATE

Multi level real time excel consolidation

The screenshots show the MetricStream interface. The top screenshot displays a data table with columns for ID, Name, Created On, Subject, and Description. The bottom screenshot shows a login form with the following details:

- Login:
- Password:
- Buttons: OK, Cancel, Forget Password?, Change Password

Towards Pervasive GRC



Upcoming Initiatives

Upcoming Initiatives



Towards Pervasive GRC



Thank You