BI to the Masses

End-User BI from a Project Management Perspective

Presented by

Dr. Morten Middelfart, TARGIT CTO

TARGIT
business intelligence

Morten Middelfart – Work Background

- 1997–present, CTO of TARGIT A/S, Business Intelligence software company, Denmark
- 1996–1997, Founder and CEO of Morton Systems ApS, a startup BI software company
- 1992–1996, BI Project Manager at A.P. Moller/Maersk, Denmark and New Jersey, USA
- 1990–1992, Platoon Leader, Danish Army, Motorized Combat Infantry
- 1985–1989, Programmer at Sandlykke & Leifsgaard, Denmark

See targit.com/research for more info.

Morten Middelfart – Educational Background

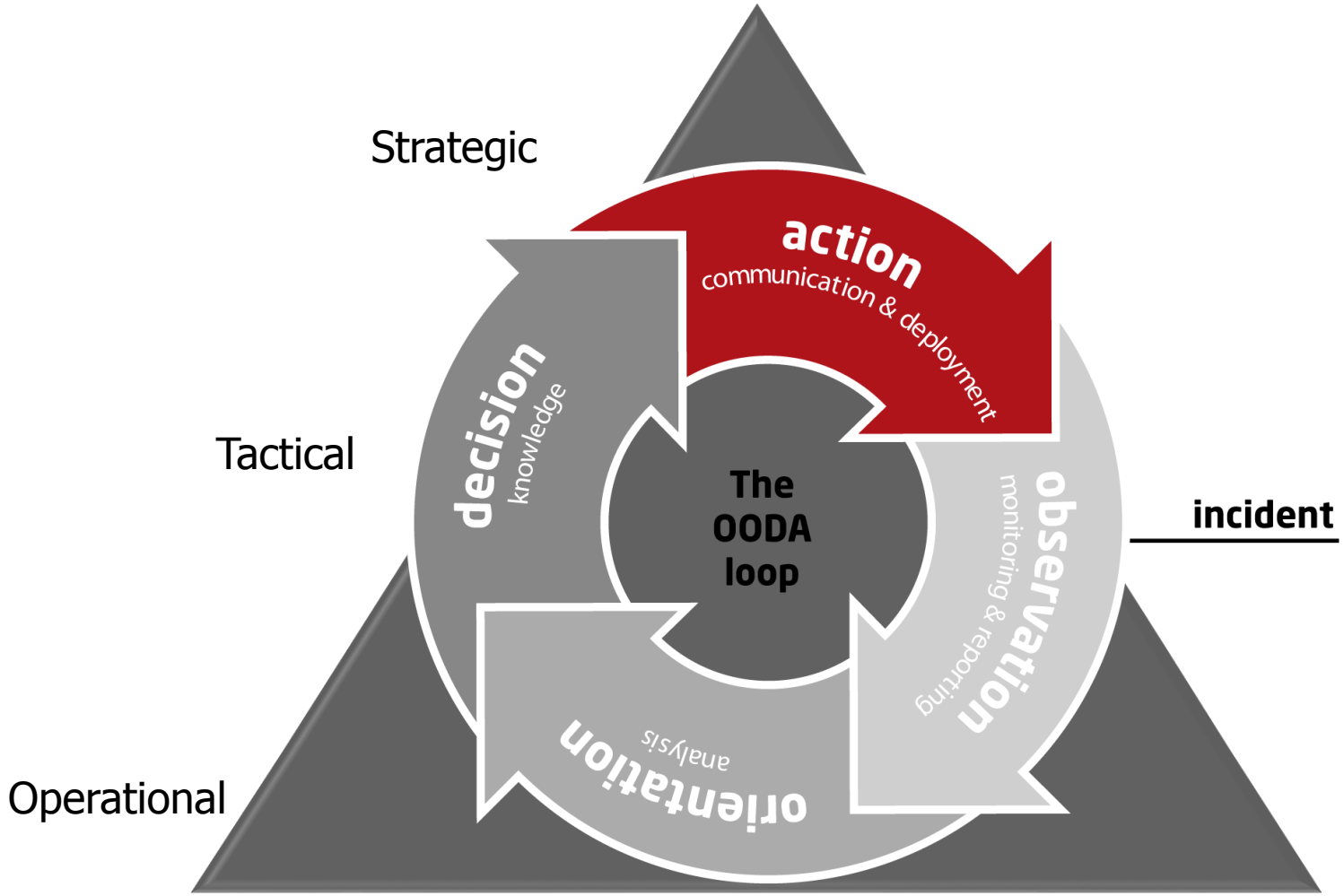
- Ph.D. in Computer Science, Aalborg University, Denmark, December 2010
- Ph.D. in Computer Aided Leadership & Management, Rushmore University, USA, August 2004
- MBA from Henley Management College, UK, February 2002
- MISE at A.P. Moller, Denmark, August 1992
- Army School of Combat, Denmark, December 1990

See targit.com/research for more info.

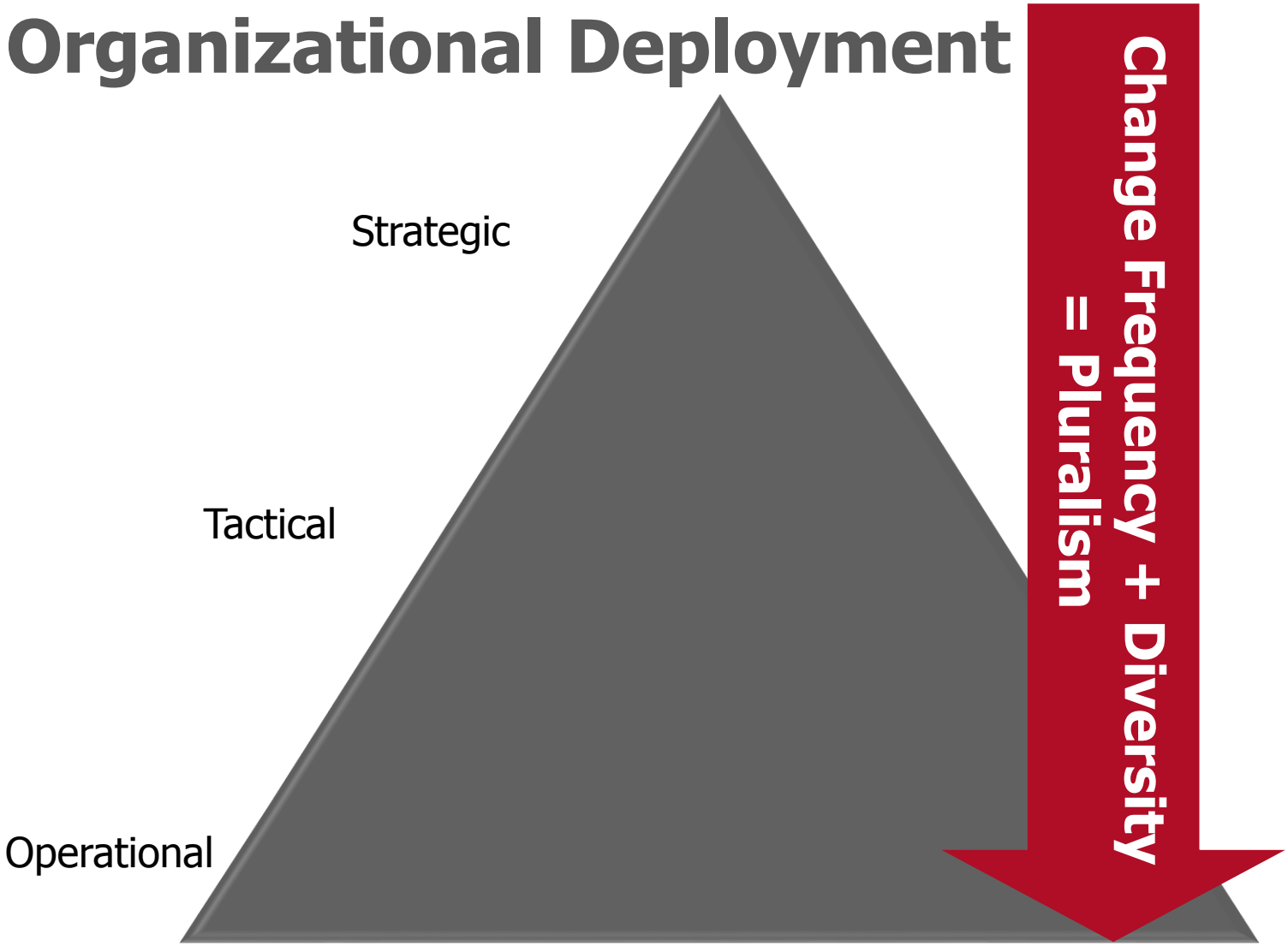
Market
People
Organisation
Technology
Information System

The OODA Loop

Organizational Context



Organizational Deployment



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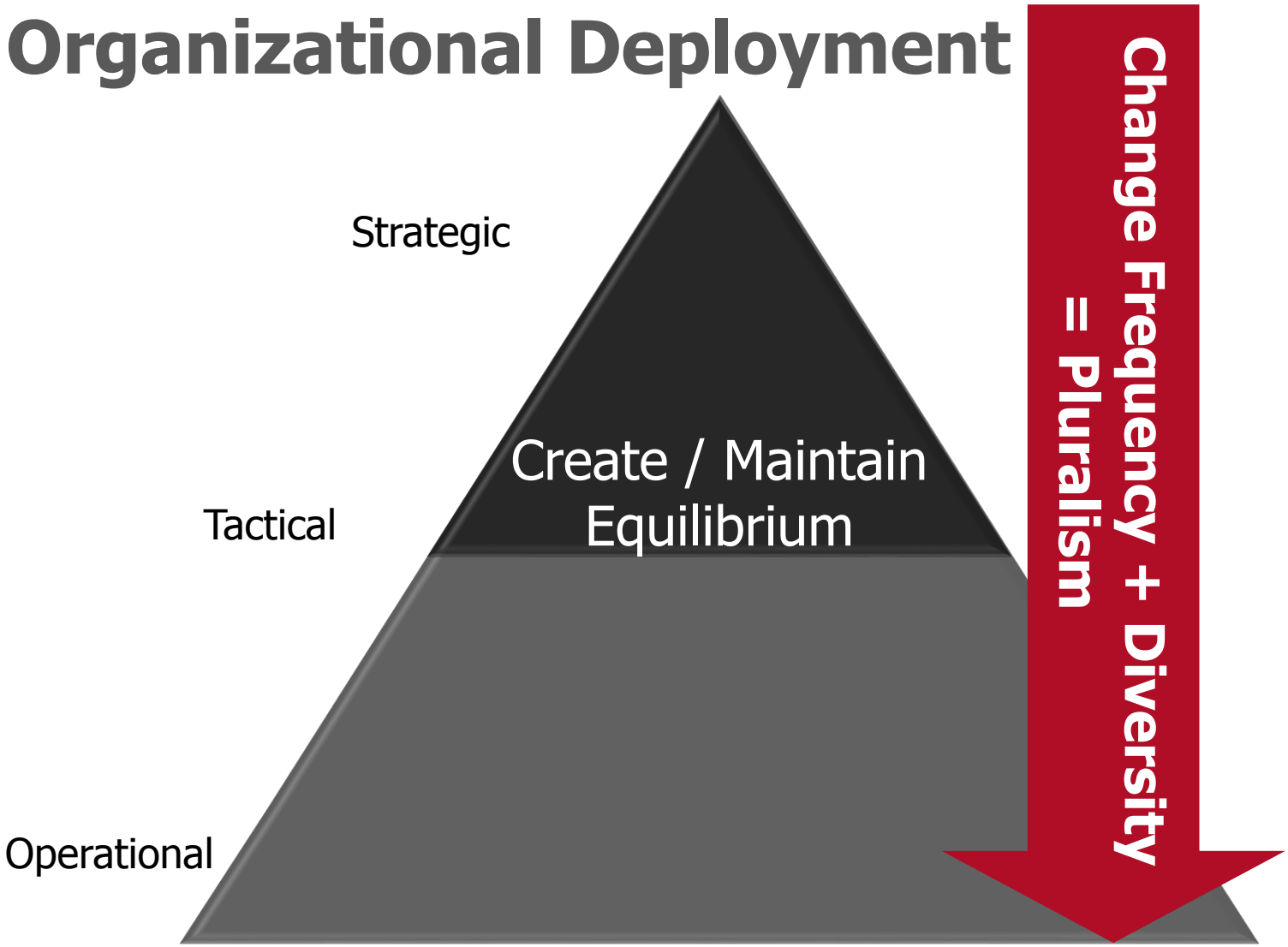

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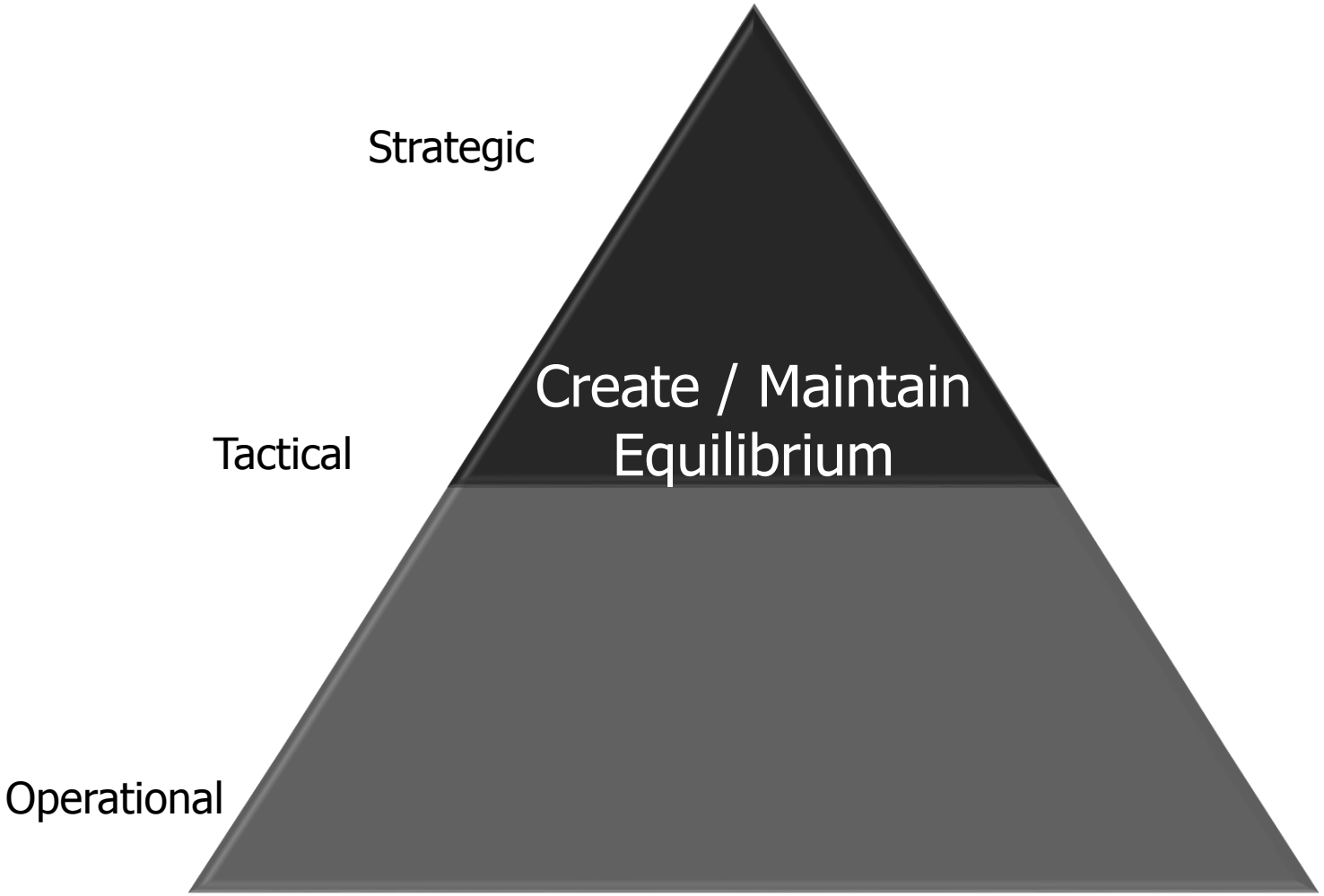

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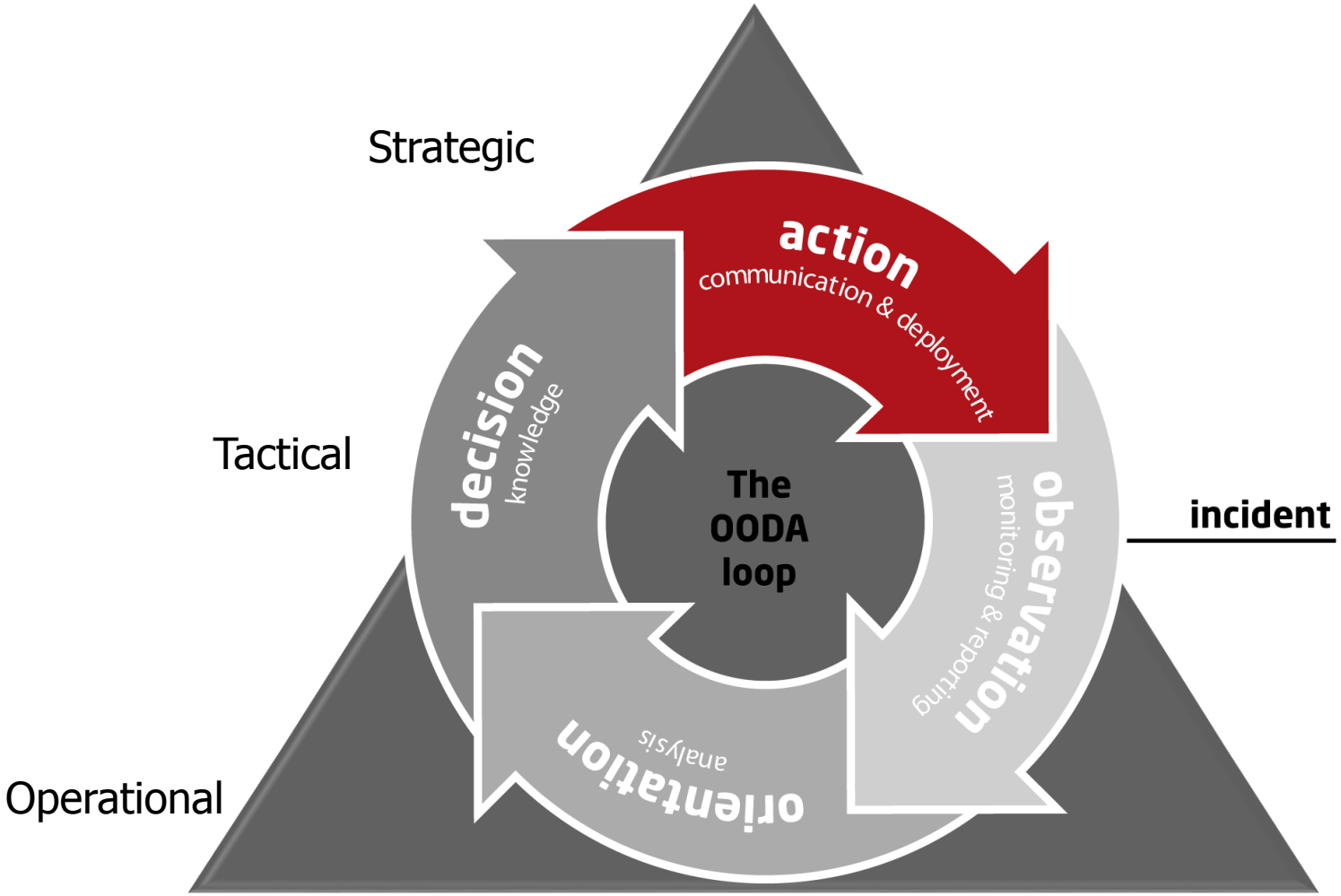

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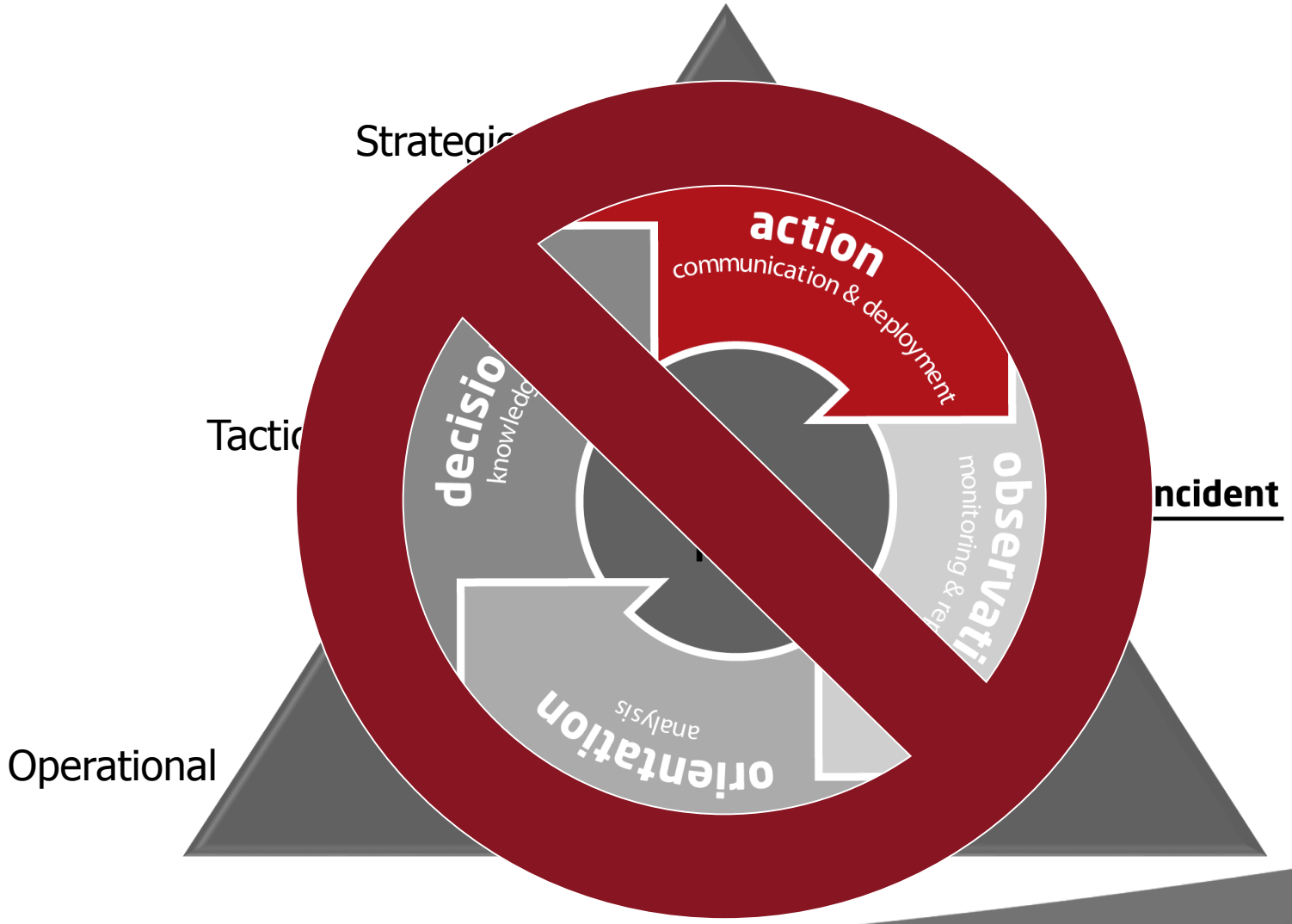

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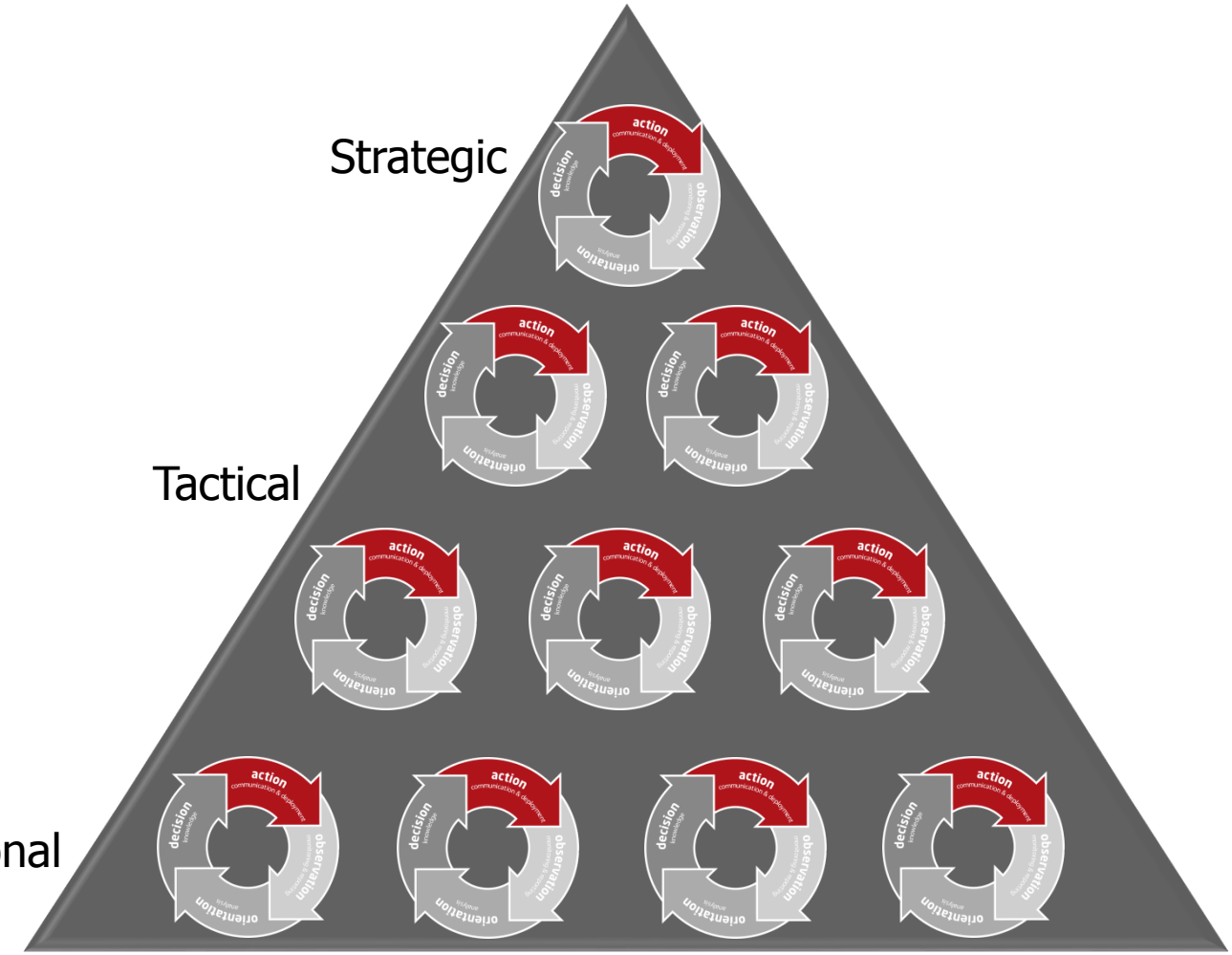

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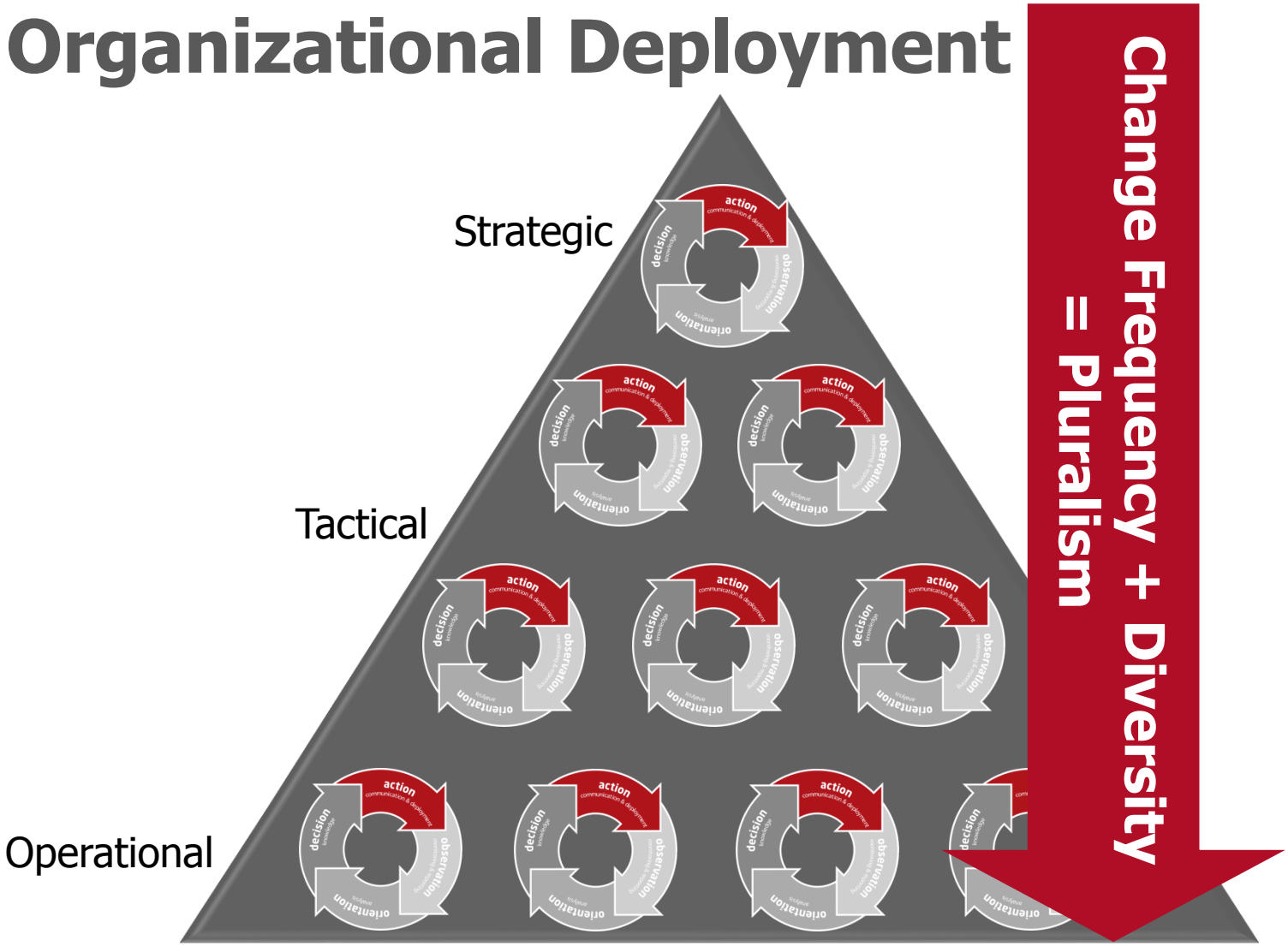
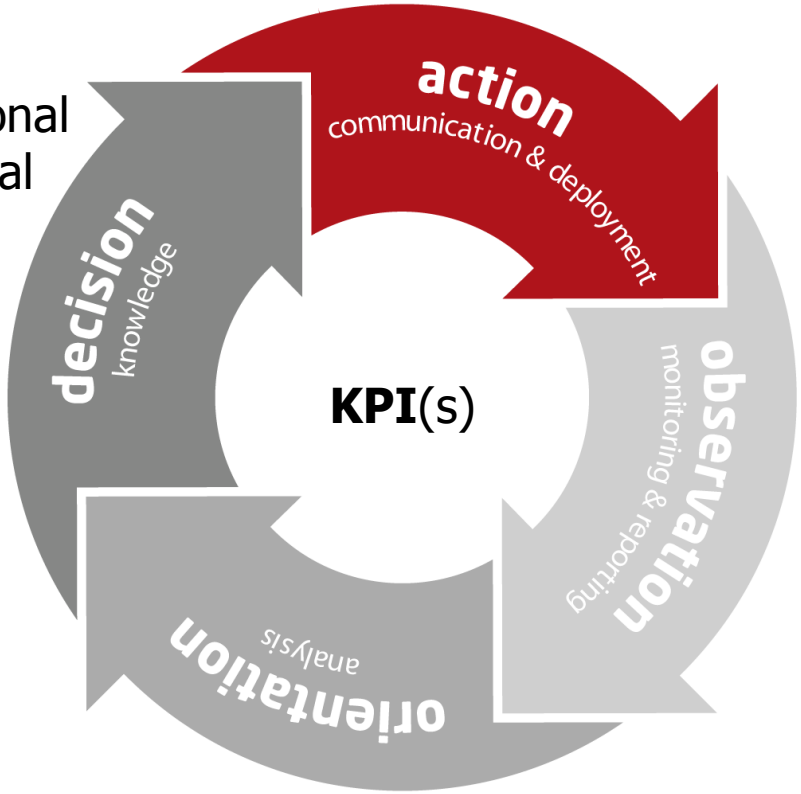


The OODA Loop

The CALM Circle (OODA+IT)

Decision
Search for additional
Internal & External
Knowledge



Action
Storyboard Mass-Comm.
Other Communication
Workflow Initiation
Modify Cycle

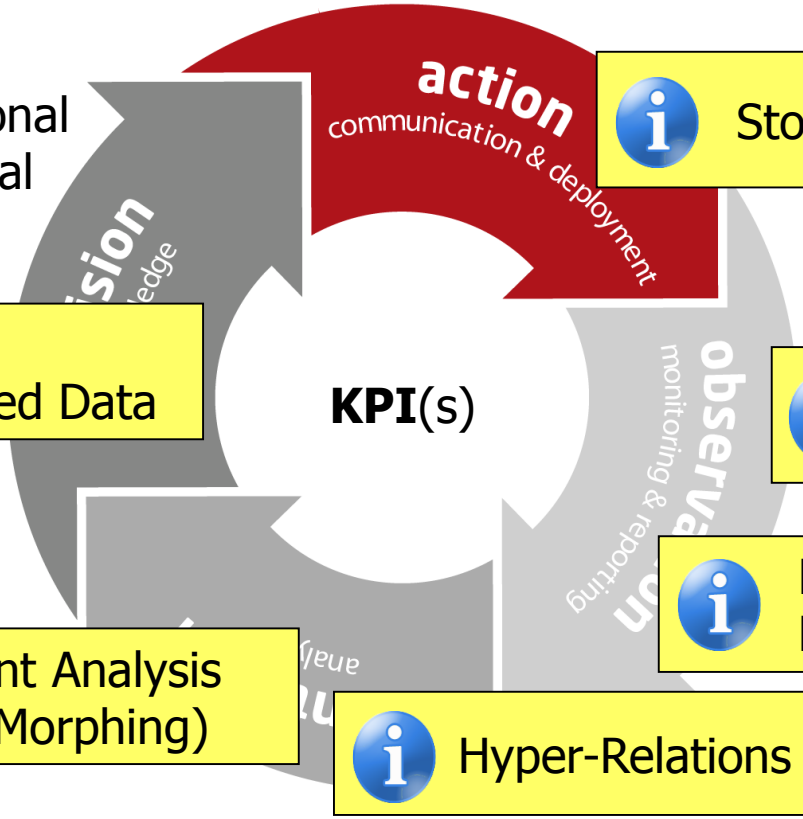
incident

Orientation
Analysis
Simulation
Data Mining

Observation
Dashboards
Reporting
Agents

TARGIT business intelligence

The CALM Circle



Decision
Search for additional Internal & External Knowledge

Storyboards

ard Mass-Comm.
ommunication
Workflow Initiation
Modify Cycle

Search in Un-structured Data

Ad-Hoc Agents & Sentinels

Orientation
An
Sir
Da

Desktop & Mobile Notifications

Intelligent Analysis (Meta-Morphing)

Hyper-Relations

Reporting Agents

The Meta-Morphing Model Used in the TARGIT BI Suite

The Cost of a "Click"

- Time
- Risk of Error
- Education

Approaches to Reduce "Clicks"

- Intelligent Systems Using Meta-Morphing
- A Quantitative Approach to User-Friendliness

The CALM Circle

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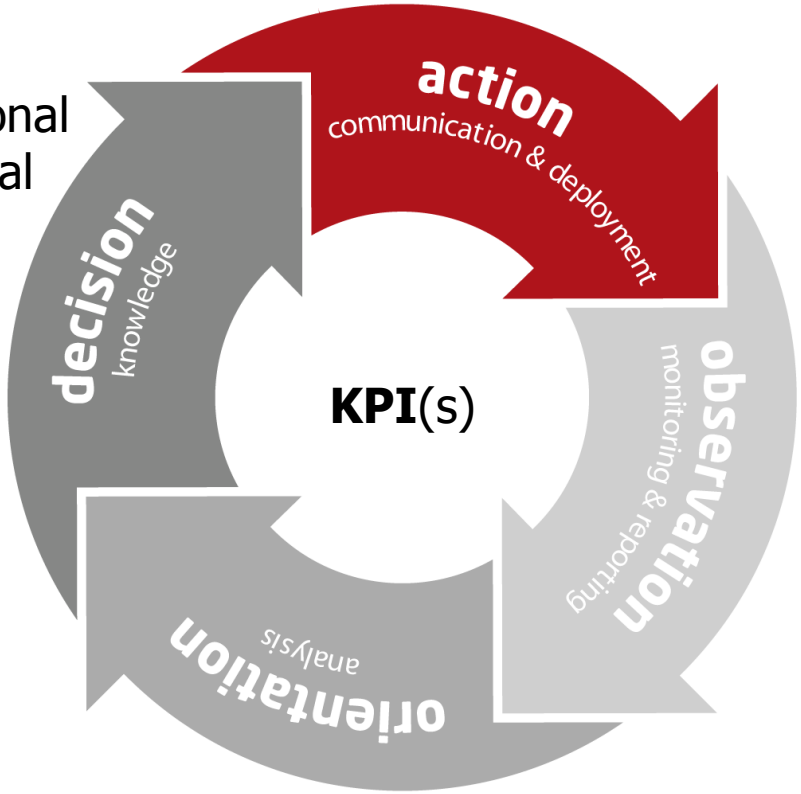

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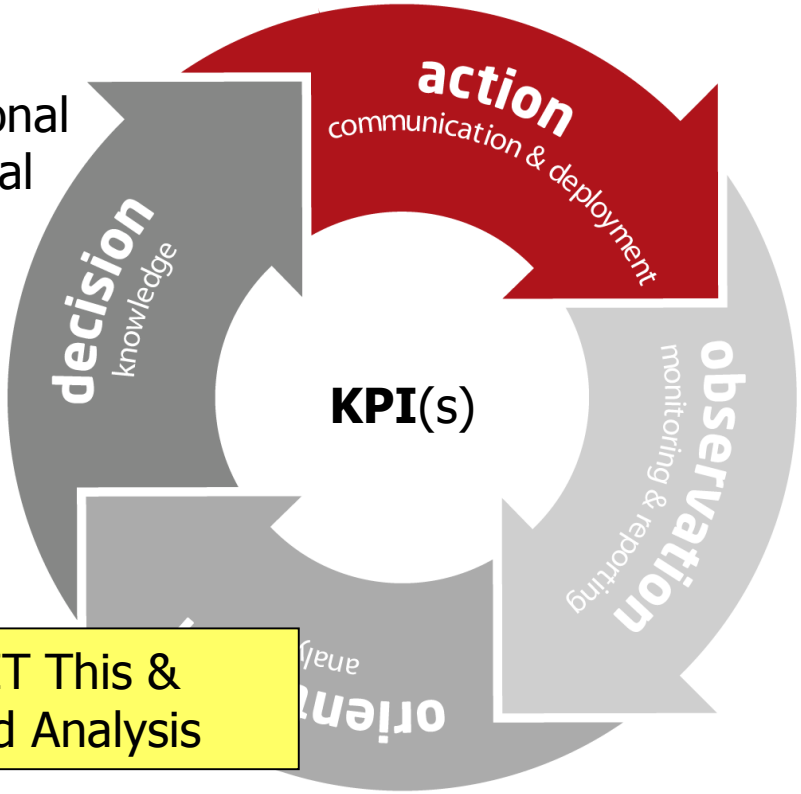

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TARGIT This &
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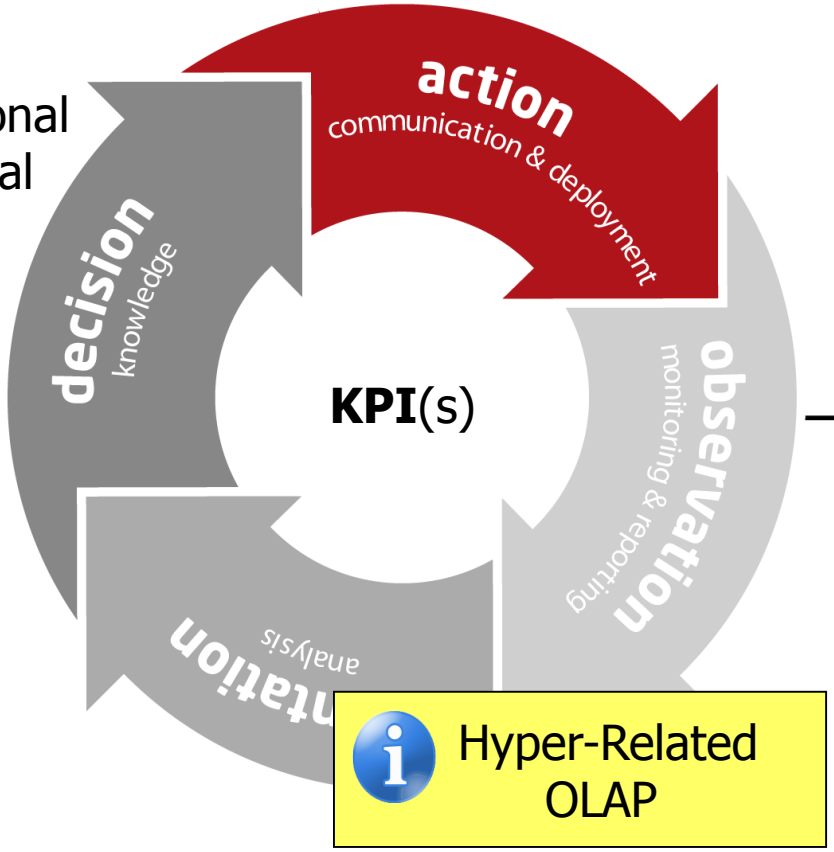

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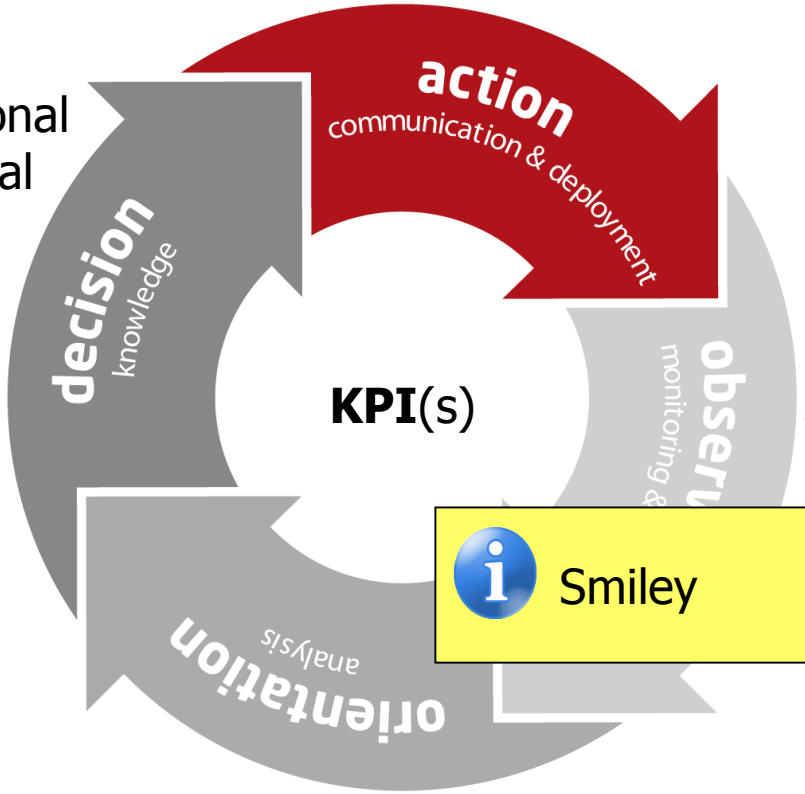

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incident

Smiley

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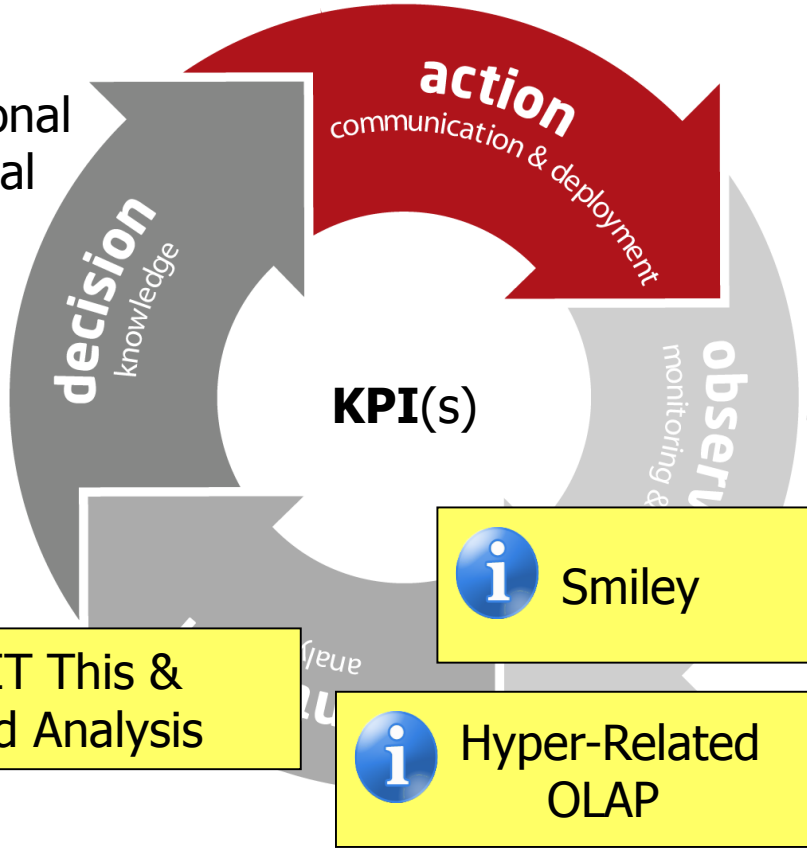

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Guided Analysis

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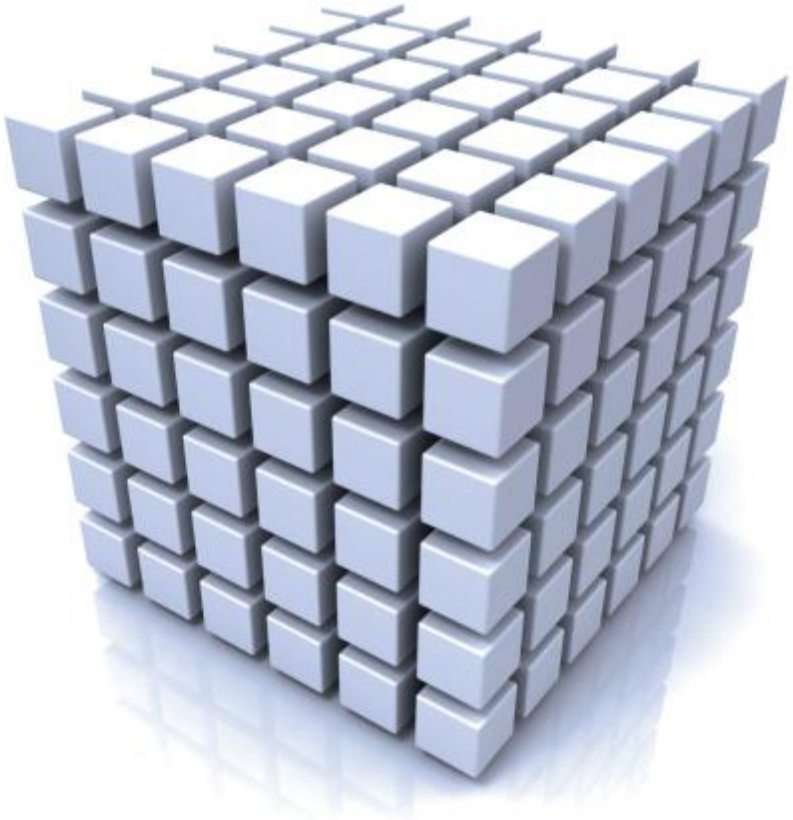
What is Meta-Morphing?



What is Meta-Morphing?

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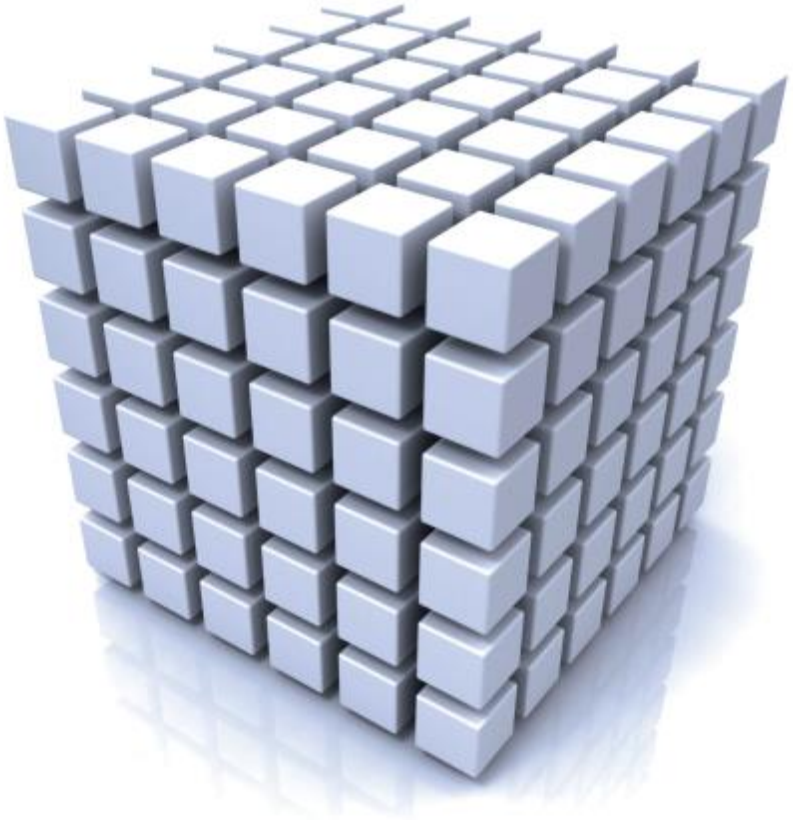

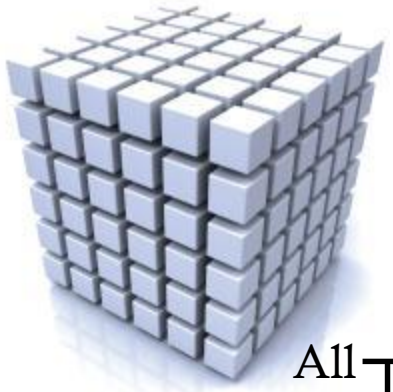

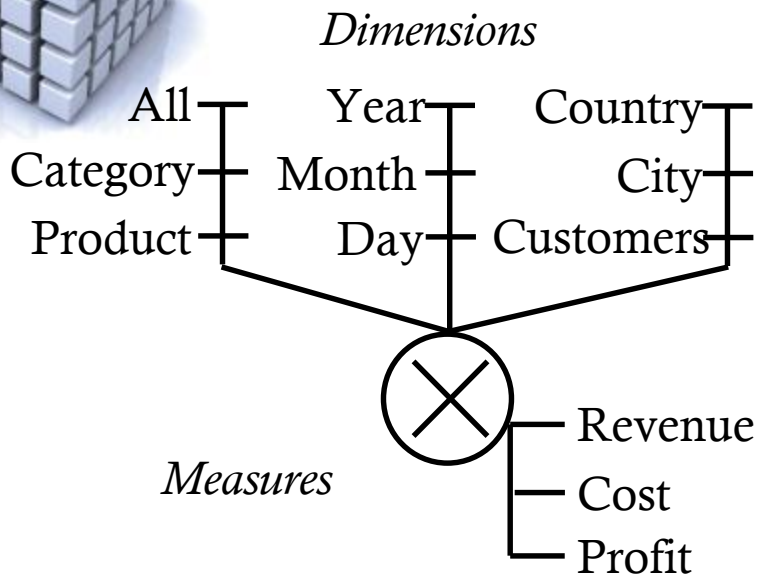
Dimensions
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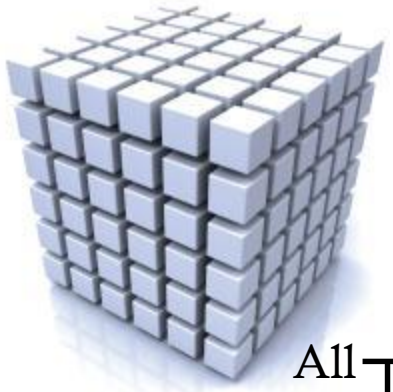
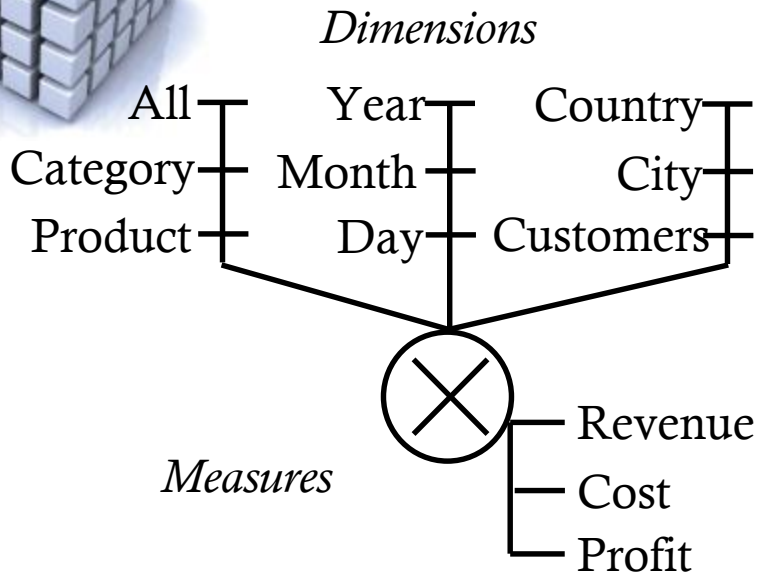
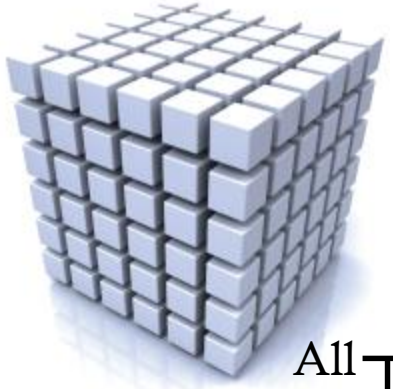
City
Customers
Measures
Revenue
Cost
Profit





I would like to see customers



Dimensions

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Category
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Year
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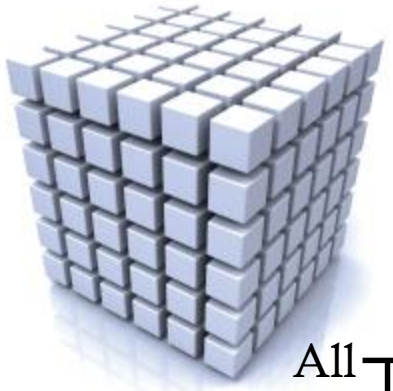
City
Customers

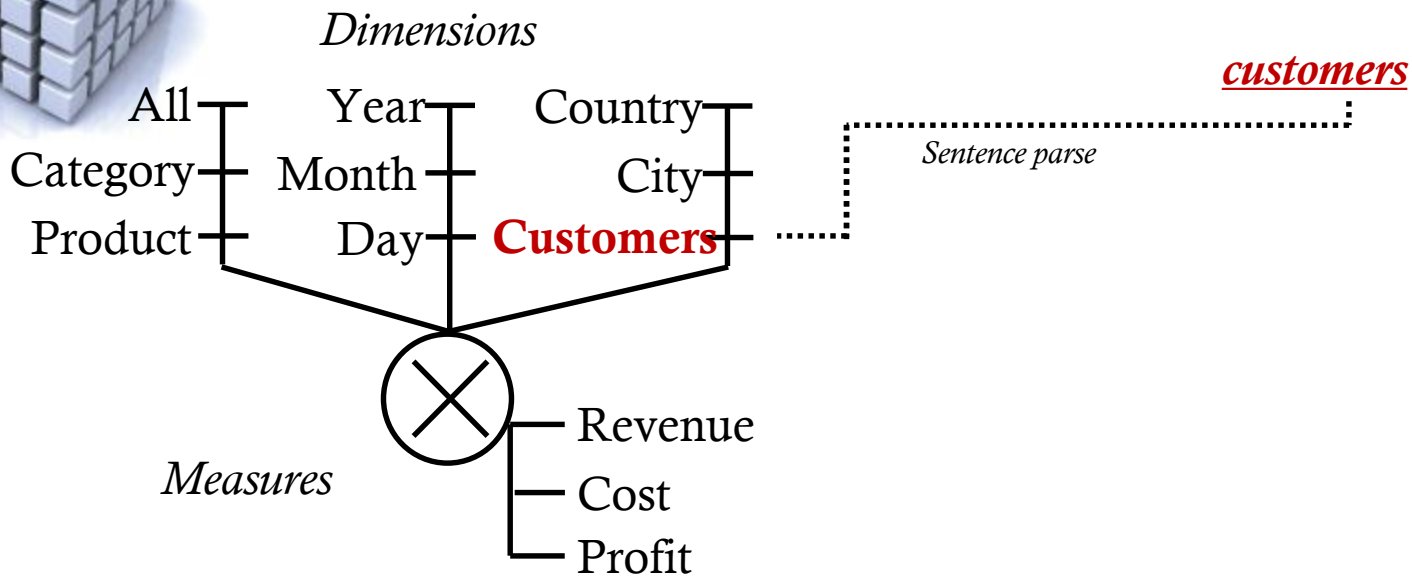
Measures

Revenue
Cost
Profit

*I would like to see **customers***

Sentence parse

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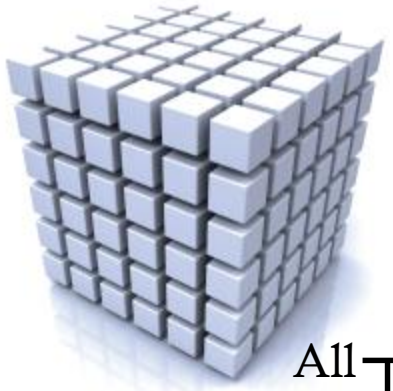
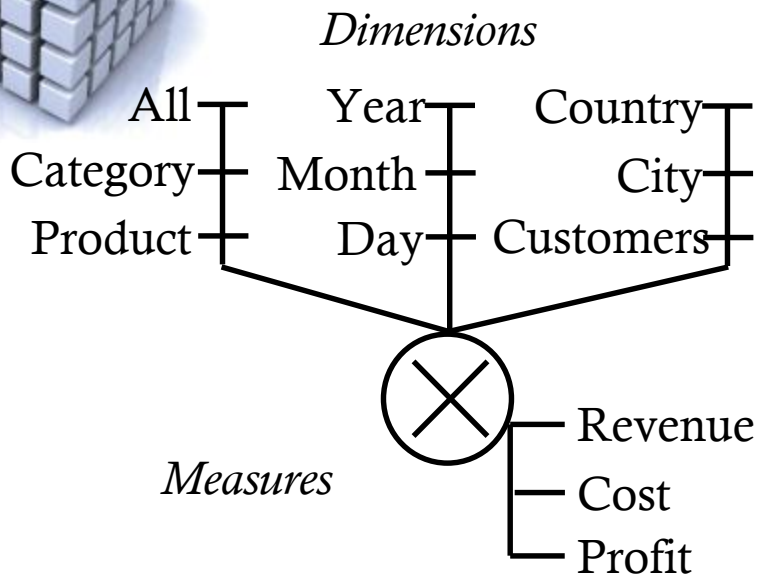
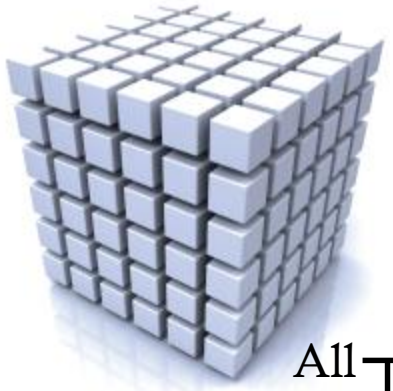




Show me revenue



Dimensions

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Product

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Month
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Country
City
Customers

*Show me **revenue***

Sentence parse

Measures

Revenue
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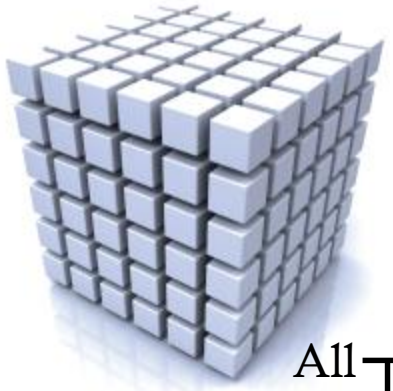
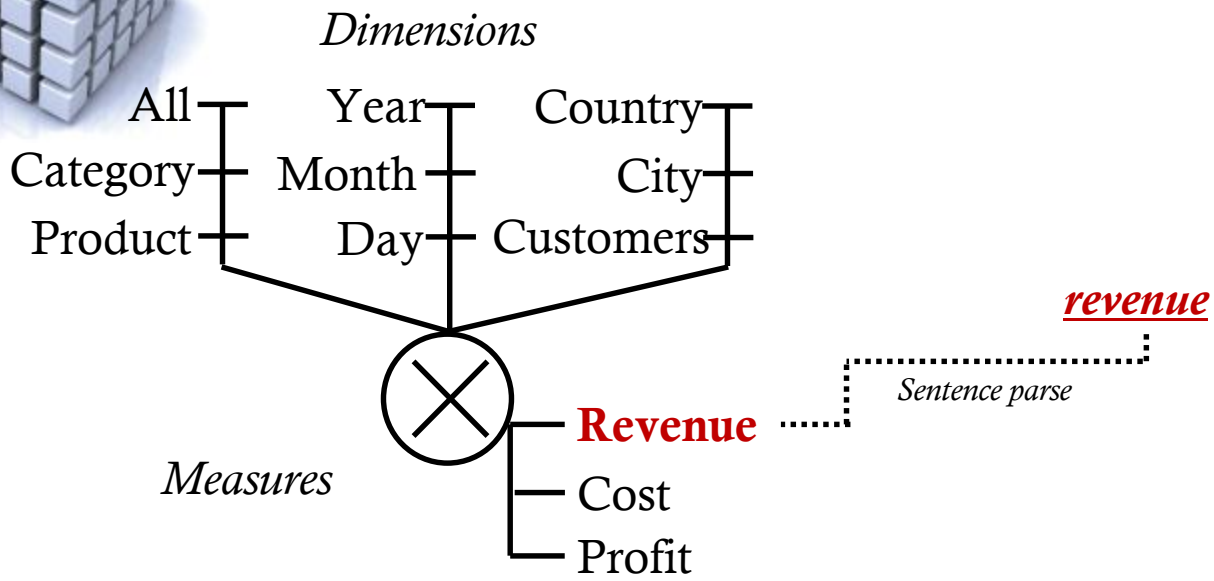
Profit

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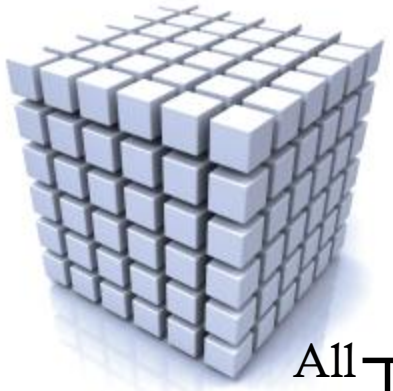

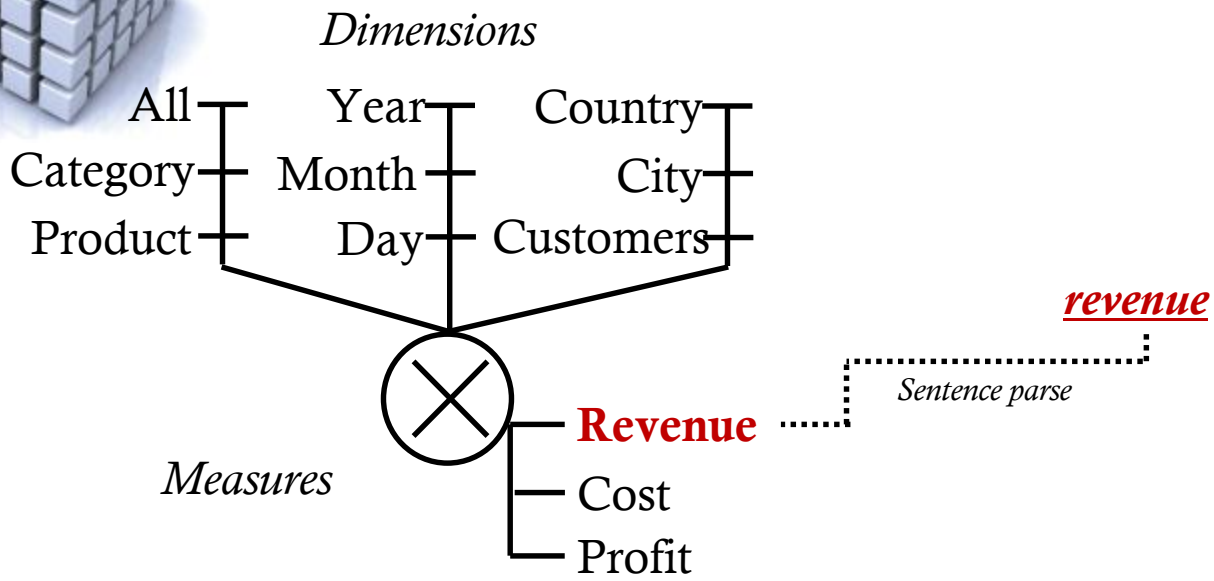
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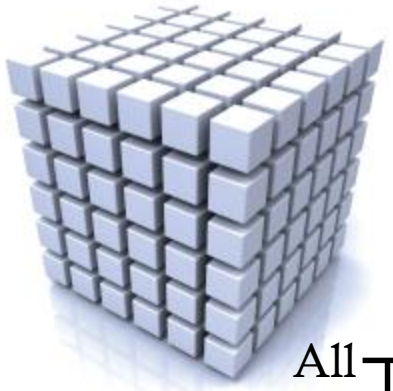
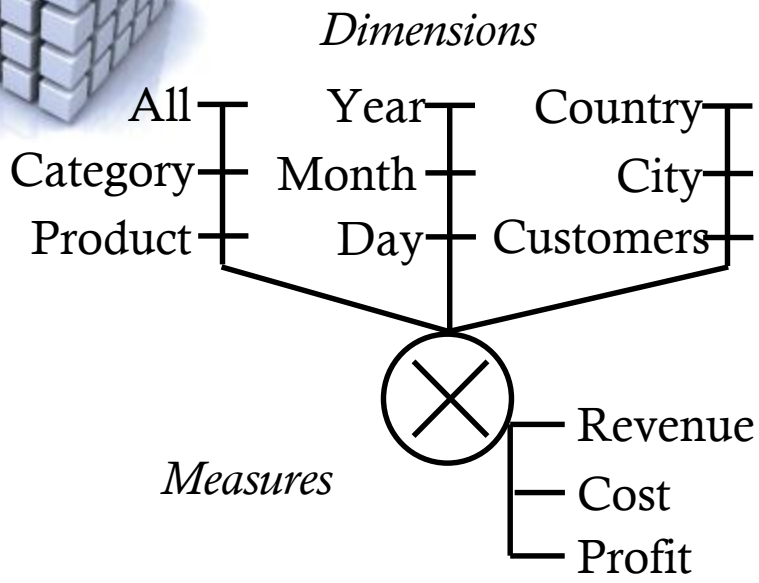
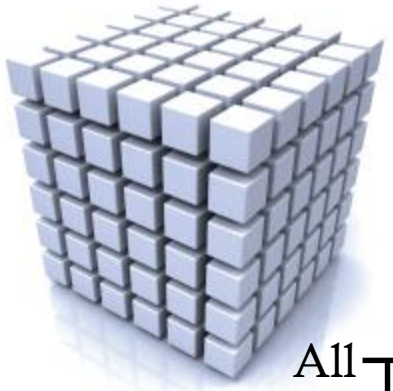
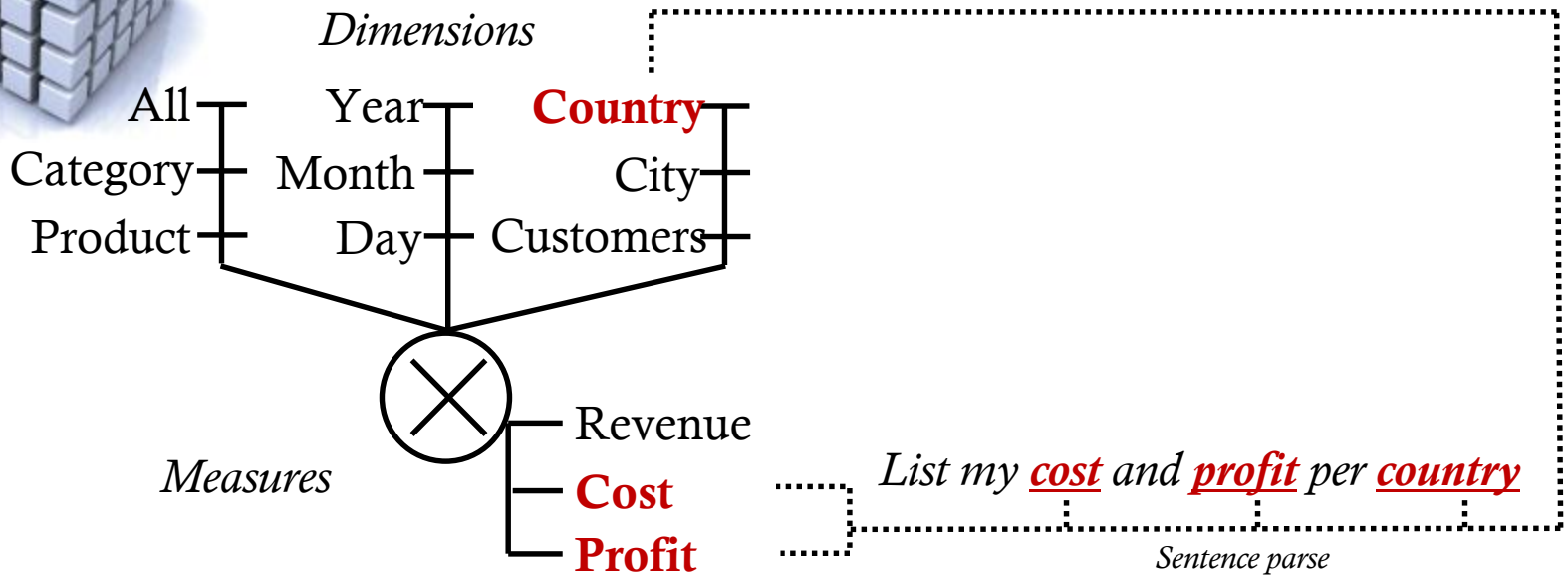




List my cost and profit per country

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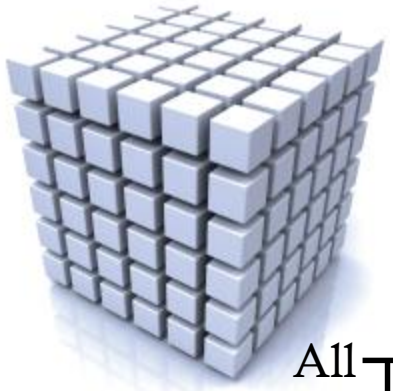

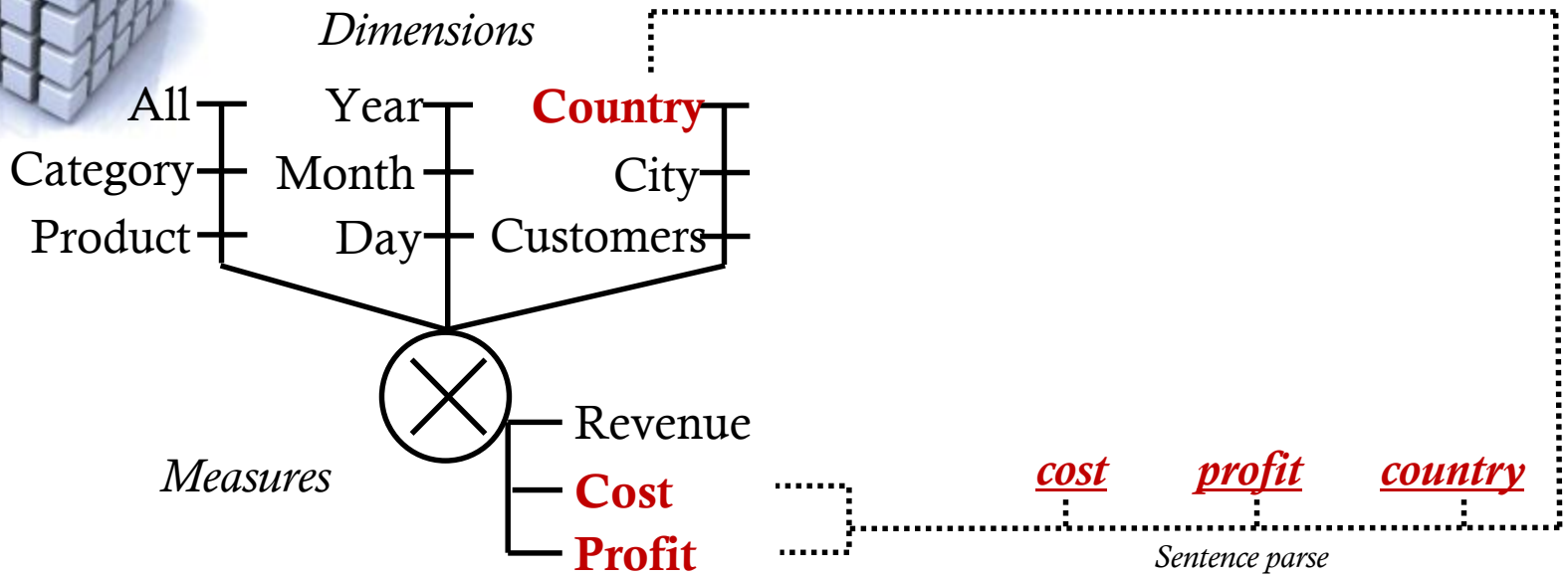
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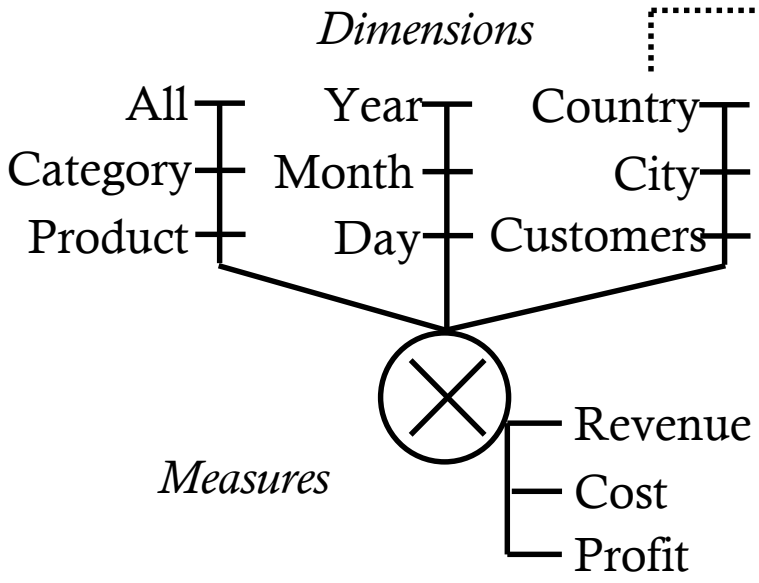
(a) Cube meta-data



(b) Questions

I would like to see customers

Sentence parse

Show me revenue

Sentence parse

List my cost and profit per country

Sentence parse

(c) Associations

Dimension	Measure	Used Count
Customers	Revenue	3
Country	Profit	2
Country	Cost	1
…	…	…

(d) Presentation preferences

Answer	Preference
Customers, Revenue	Pie chart
Country, Profit	Bar chart
Country, Cost	Bar chart
Country, Cost, Profit	Crosstab
…	…

The CALM Circle

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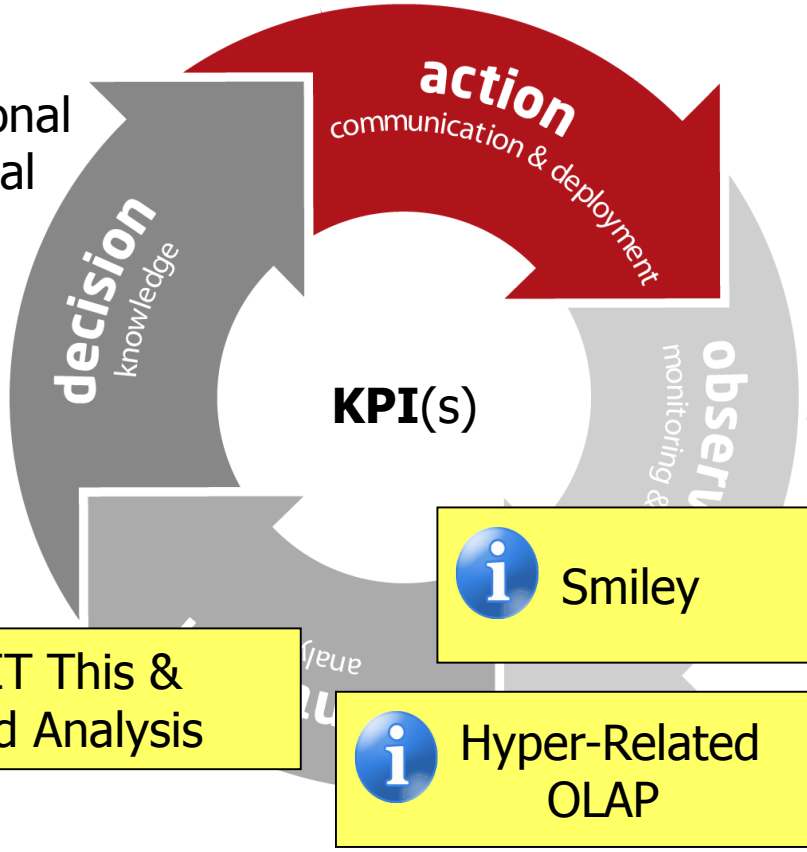

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References

M. Middelfart. CALM: Computer Aided Leadership & Management. iUniverse, 2005.

M. Middelfart and T.B. Pedersen. Using Sentinel Technology in the TARGIT BI Suite. PVLDB 3(2): 1629–1632, 2010.

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M. Middelfart. Method and user interface for making a presentation of data using MetaMorphing. United States Patent 7,783,628. Issued August 24th, 2010.

R.L. Sallam, J. Richardson, J. Hagerty, and B. Hostmann. Magic Quadrant for Business Intelligence Platforms, 2011.

TARGIT
courage to act
Courage
to
act
Demo and Research can be found at:
targit.com/research

Meeting Big Data challenges in Leadership with Human-Computer Synergy.

Presented by
Dr. Morten Middelfart, CTO

TARGIT business intelligence

Big Data

Data that exists in such large amounts or in such unstructured form that it is difficult to handle in the traditional data warehouse or any other type of database.

Right?

From Control to **No** Control

From Control to No Control

- Business Intelligence (BI)
  Reporting, OLAP, and data mining
  on data that are under our control.
- "Analytics" starts where BI ends
  Typically data will not be under our control.

From **How** to **Who**

But also

Why

From Control to No Control

- No control over availability
- No control over quality
- Tipping point for me was 2012

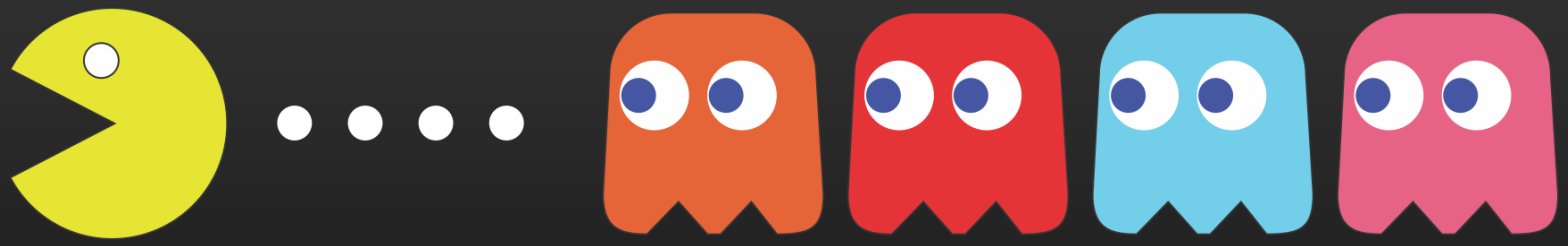
  Twenty years of BI, I found myself doing more Analytics of data I did not control…

From Control to No Control

Do you **Fear Change?**

What is Fear?

What is Fear?



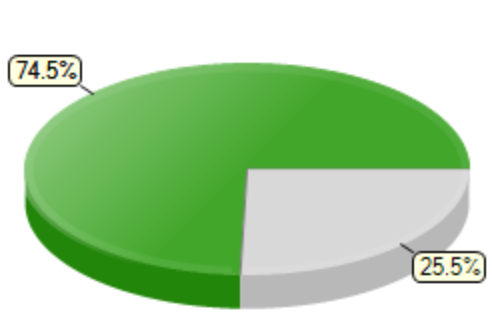
Strategic
Tactical
Operational

Strategic
Tactical
Operational

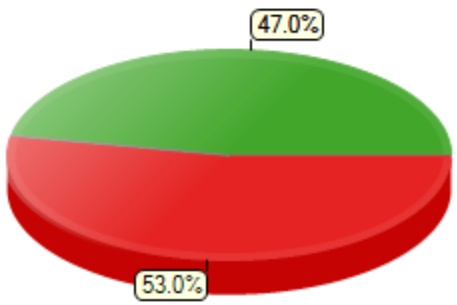
TARGIT your decisions in fewest clicks

TARGIT
business intelligence

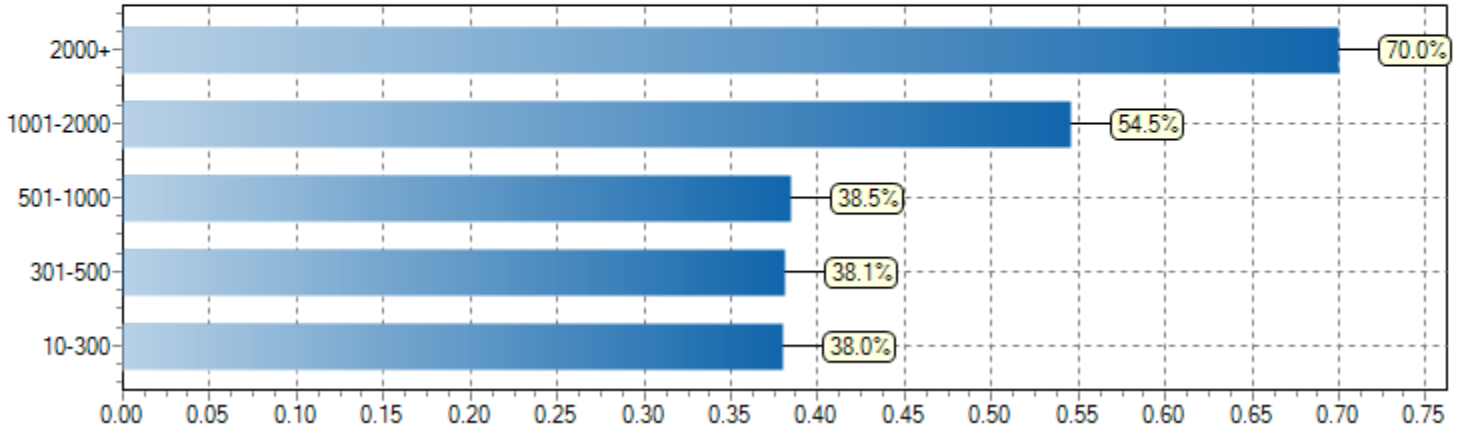
Count per had_dream



Count per dream_changed



Count per jumps by dream_changed



Displaying

Freefall

Findings

Share This

Comments

Enter comment...

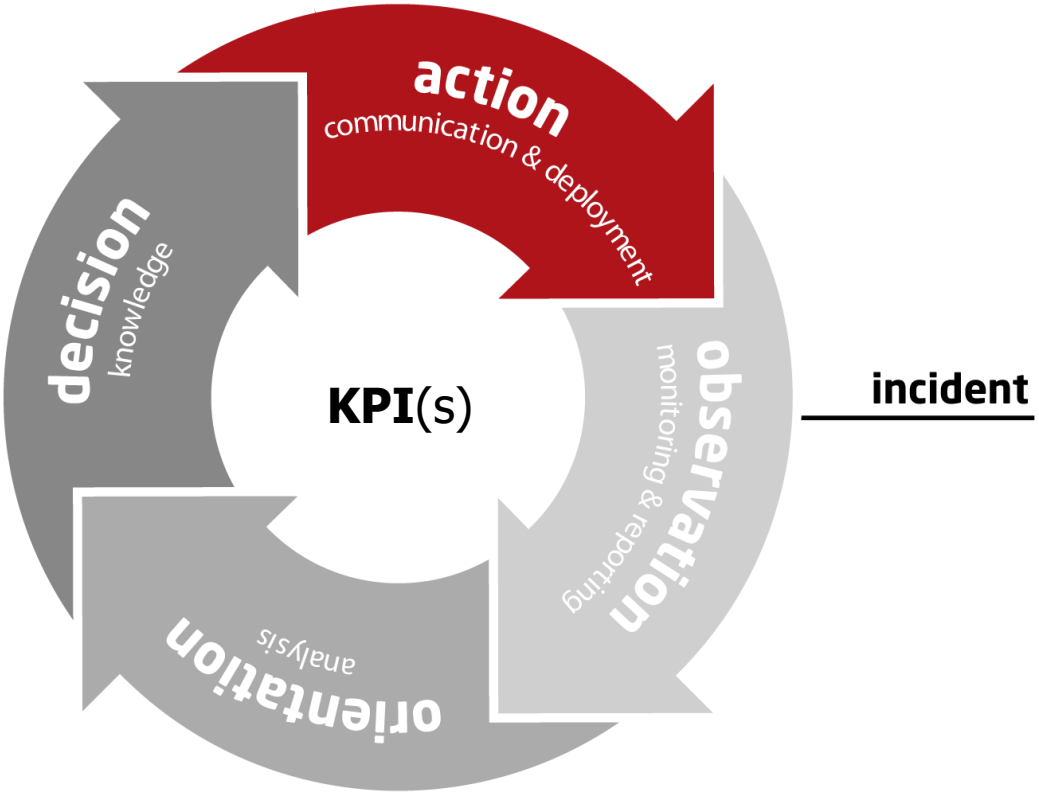
Comment

Facts Beat Fear

#HumanComputerSynergy
#FactBeatFear

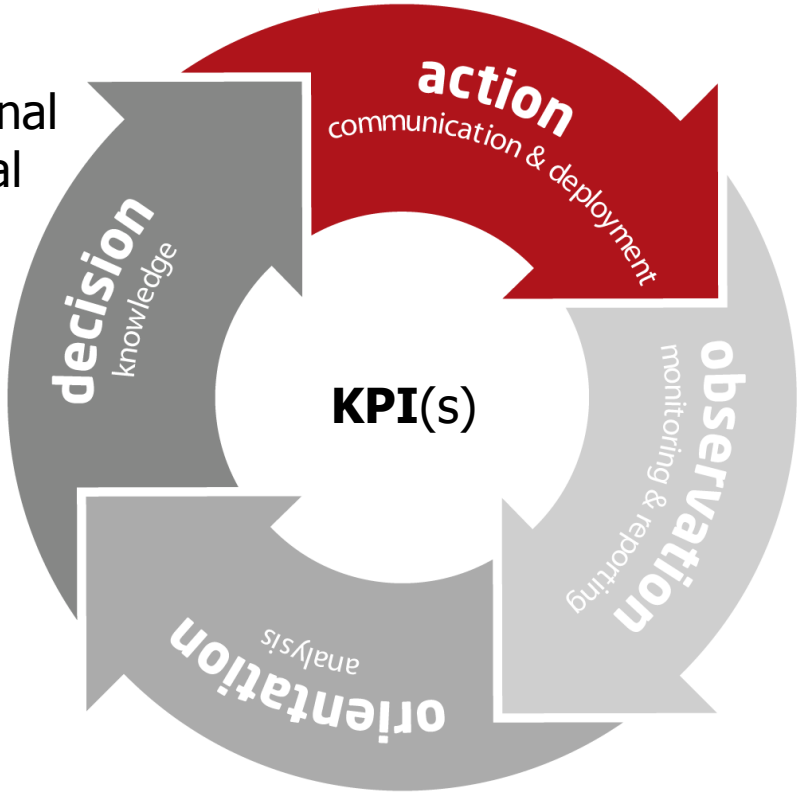
Strategic
Tactical
Operational

The OODA Loop



The CALM Cycle

Decision
Search for additional
Internal & External
Knowledge



Action
Storyboard Mass-Comm.
Other Communication
Workflow Initiation
Modify Cycle

incident

Orientation
Analytics
Simulation
Data Mining

Observation
Dashboards
Reporting
Agents

TARGIT business intelligence

TARGIT your decisions in fewest clicks

TARGIT
business intelligence

Any number of unintegrated features or applications will slow you down !

- or make you FAIL !

It's a **War**

http://www.youtube.com/watch?v=TDaFwnOiKVE

Kevin Slavin: How algorith...

YouTube

kevin slavin algorithms change

Browse | Upload

Kevin Slavin: How algorithms shape our world

TEDtalksDirector | Subscribe | 1,213 videos

Like | Share

300,505

Uploaded by TEDtalksDirector on Jul 21, 2011

http://www.ted.com Kevin Slavin argues that we're li...

TARGIT business intelligence

It's a War

- Algorithms are already influencing (defining) structured data
- Scoring – the one number analysis
  Credit Score, Klout -> Profiling
- Algorithms are moving into unstructured, uncontrolled data too…

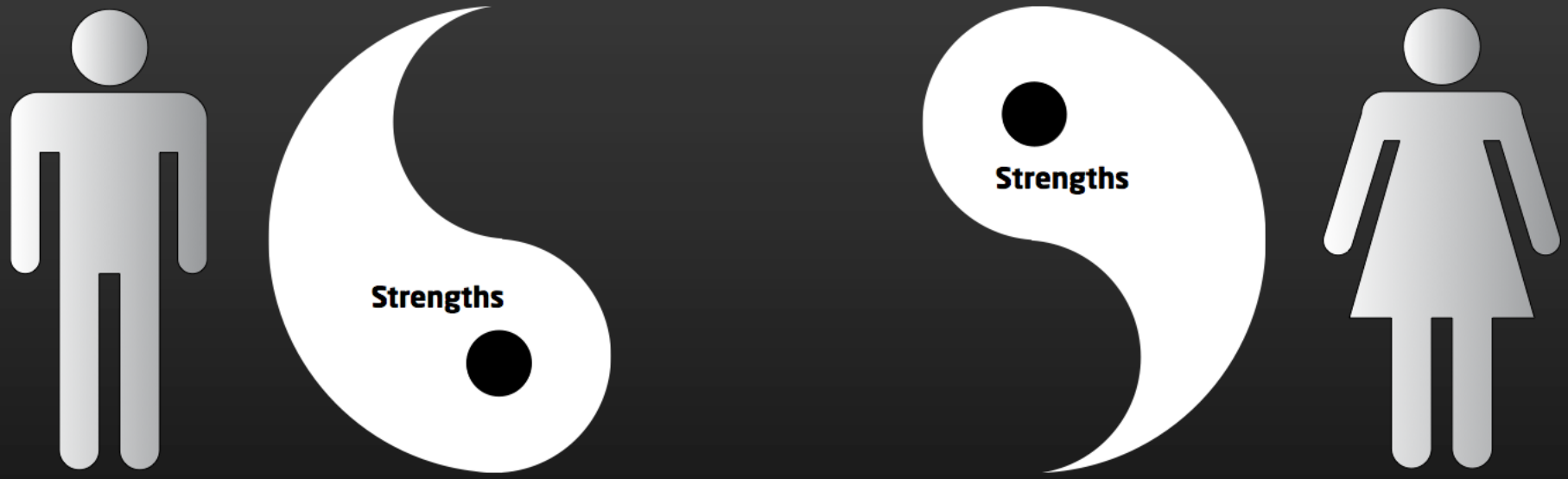
TARGIT your decisions in fewest clicks

TARGIT business intelligence

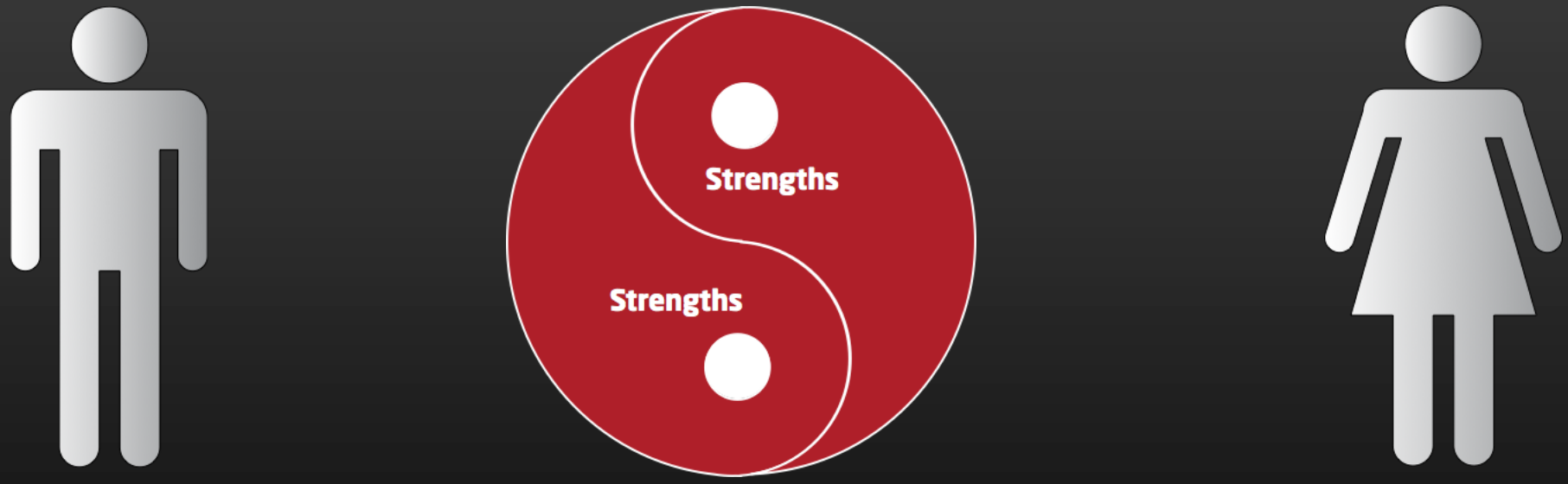
Synergy between humans

Synergy between humans

Synergy between humans

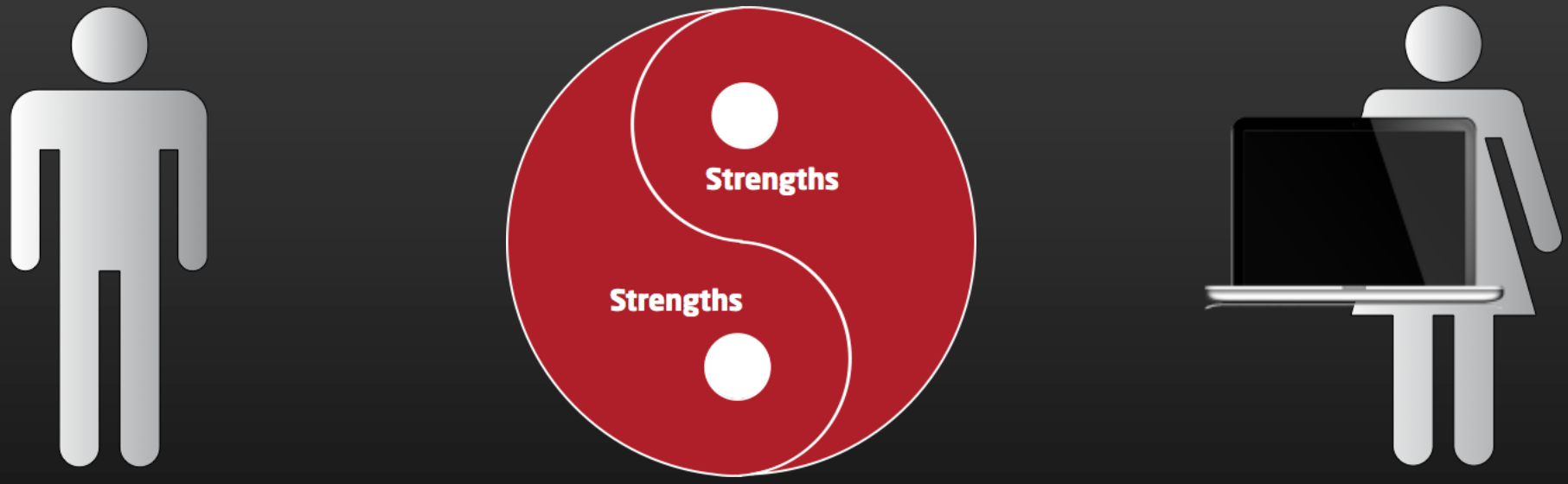


Synergy between humans



Ideal

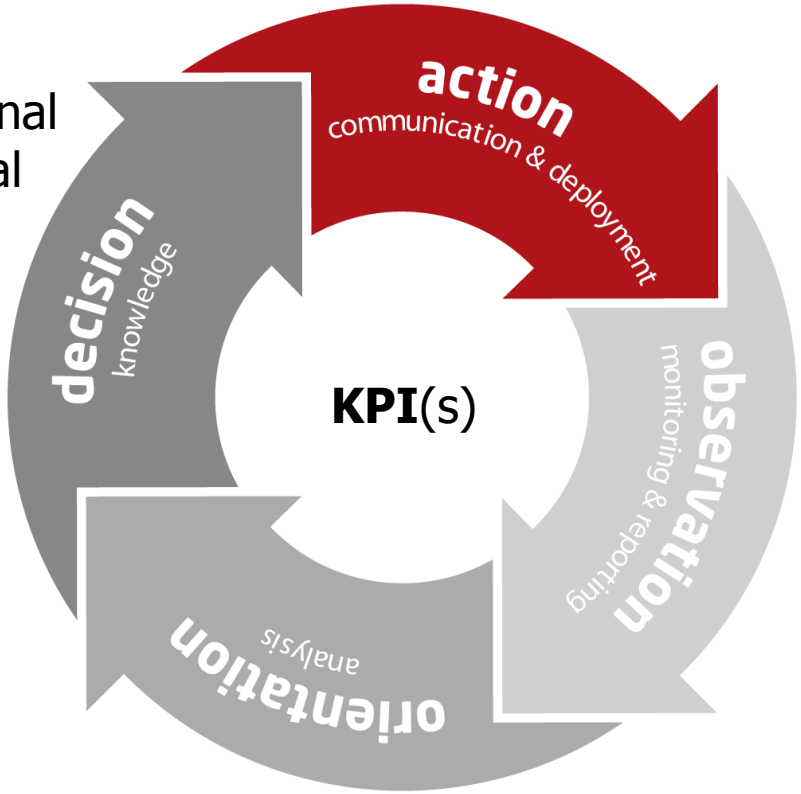
Synergy between humans and computers



Ideal

It's a War: Human-Computer Synergy

Decision
Search for additional
Internal & External
Knowledge



Action
Storyboard Mass-Comm.
Other Communication
Workflow Initiation
Modify Cycle

incident

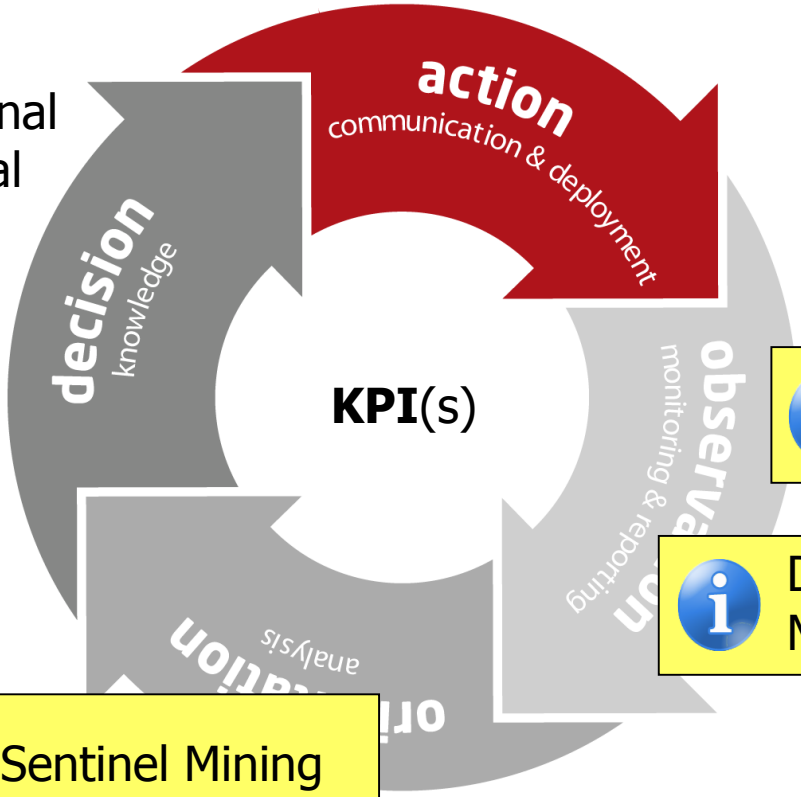
Orientation
Analytics
Simulation
Data Mining

Observation
Dashboards
Reporting
Agents

TARGIT business intelligence

It's a War: Human-Computer Synergy

Decision
Search for additional
Internal & External
Knowledge



Action
Storyboard Mass-Comm.
Other Communication
Workflow Initiation
Modify Cycle

Ad-Hoc Agents

Desktop &
Mobile Notifications

Orientation
Analytics
Simulation
Data Minir

Sentinel Mining

Reporting
Agents

TARGIT business intelligence

Strategic
Tactical
Operational

M. Middelfart. Improving Business Intelligence Speed and Quality through the OODA Concept. In Proc. of DOLAP, pp. 97–98, 2007.

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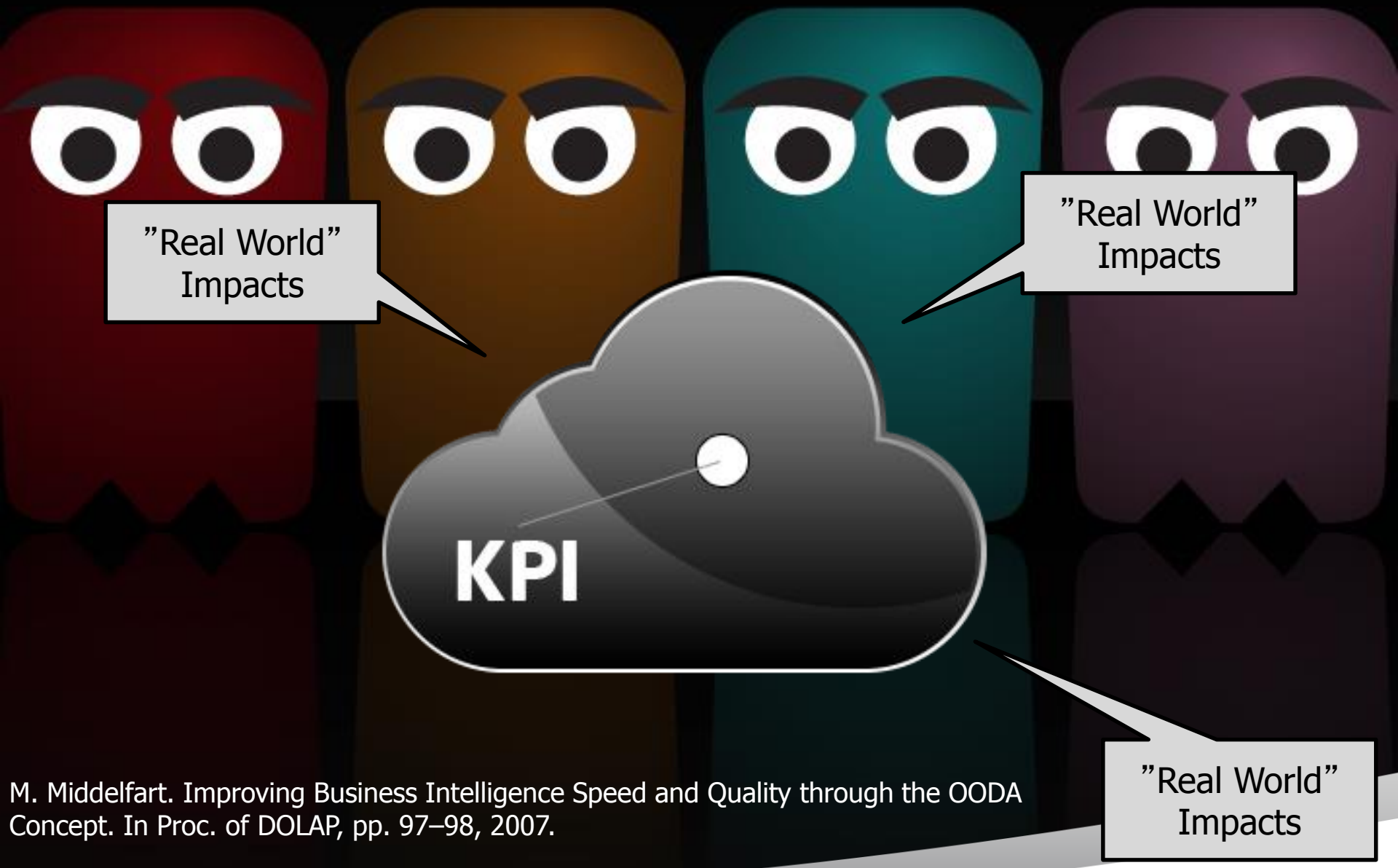

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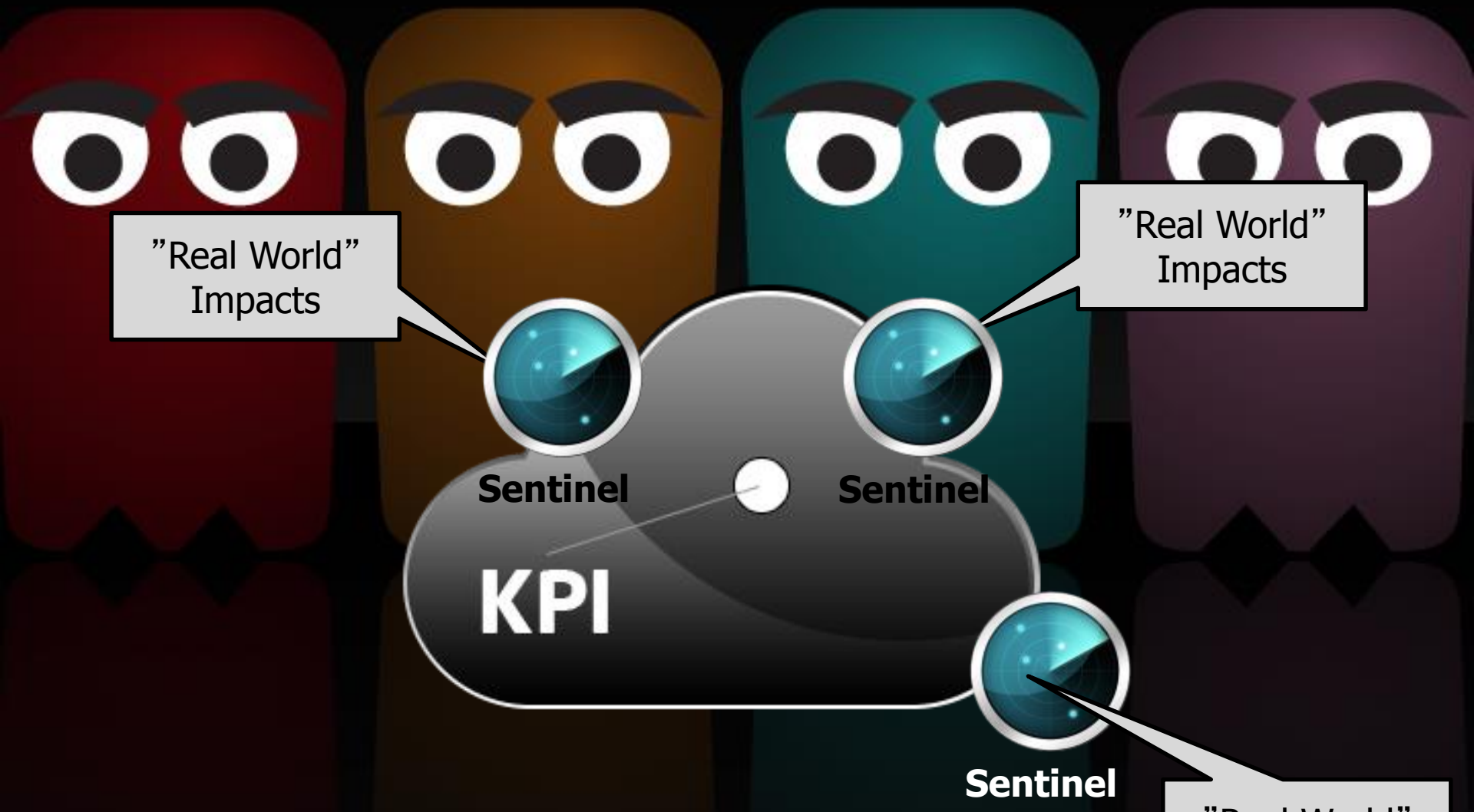

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M. Middelfart. Improving Business Intelligence Speed and Quality through the OODA Concept. In Proc. of DOLAP, pp. 97–98, 2007.

TARGIT - [Shared / Sales / Sample Revenue]

File Edit View Object Tools Help

New | Define | Criteria | New | Help

Company: No selection | Salesperson: No selection | Customer: No selection

Item: No selection | Measure: Revenue | Stored criteria: No selection

Criteria

Global criteria

Sales | Sales cube

Period [ ] From This year This month - 2 (2012 Q1 January) to This year This month (2012 Q1 March)

Add or Edit global criteria

Remove all global criteria

Disable immediate refresh

Dynamic date origin

2012-03-28

Keep throughout this session

Local criteria

No criteria specified

Add or Edit local criteria

Comparisons

Add comparison

Documents

Source data

Properties

Calculations

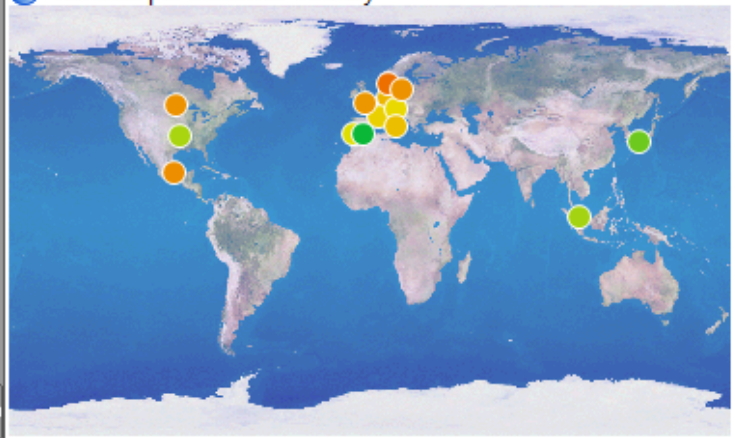
Criteria

Drillpad

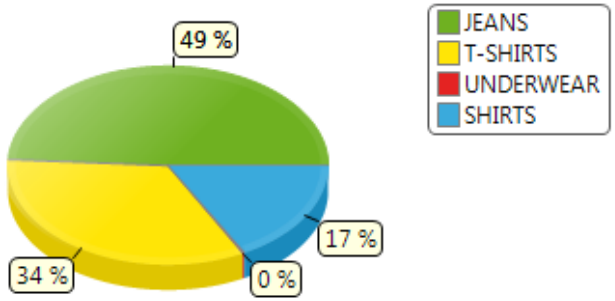
Scheduled Jobs

SALES REVENUE | January 2012 - March 2012

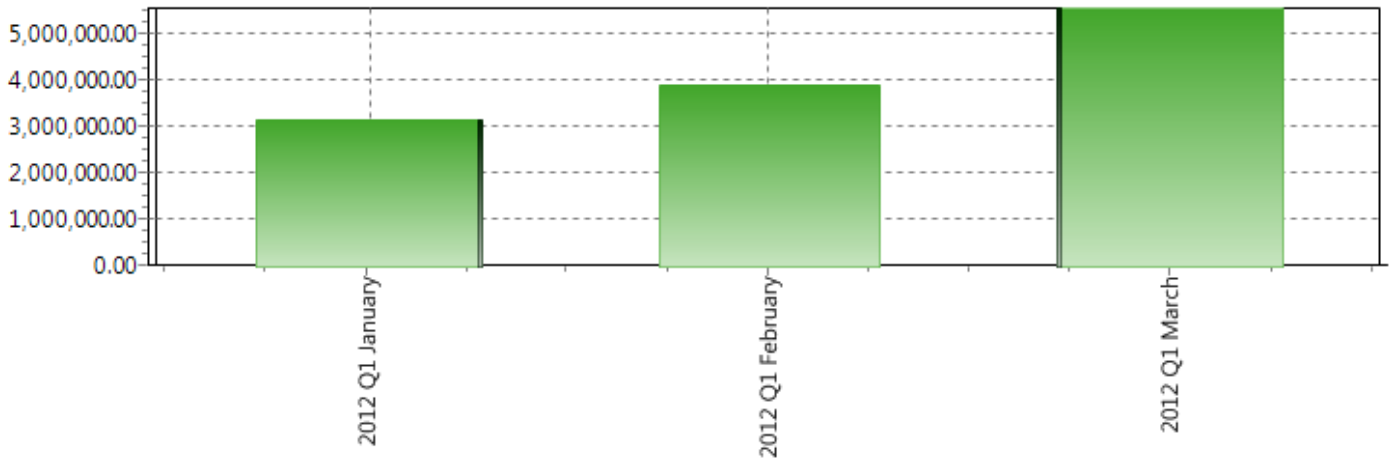
Revenue per Customer Country



Revenue per Item



Revenue per Period



Ready

TARGIT - [Shared / Sales / Sample Revenue]

File Edit View Object Tools Help

New Define Criteria New Help

Company No selection | Salesperson No selection | Custo…on

Item No selection | Measure Revenue | Stored …on

Criteria

Global criteria

Sales Sales cube

Period [ ] From This year This month - 2 (2012 Q1 January) to This year This month (2012 Q1 March)

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No criteria specified

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Comparisons

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Source data

Properties

Calculations

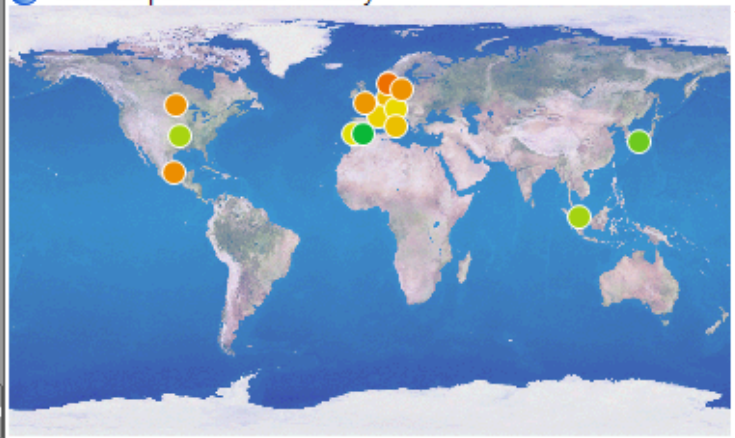
Criteria

Drillpad

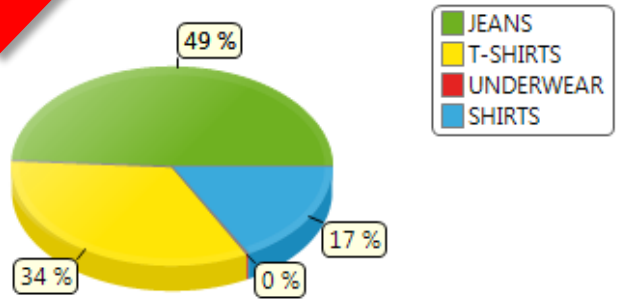
Scheduled Jobs

SALES REVENUE | January 20… 2012

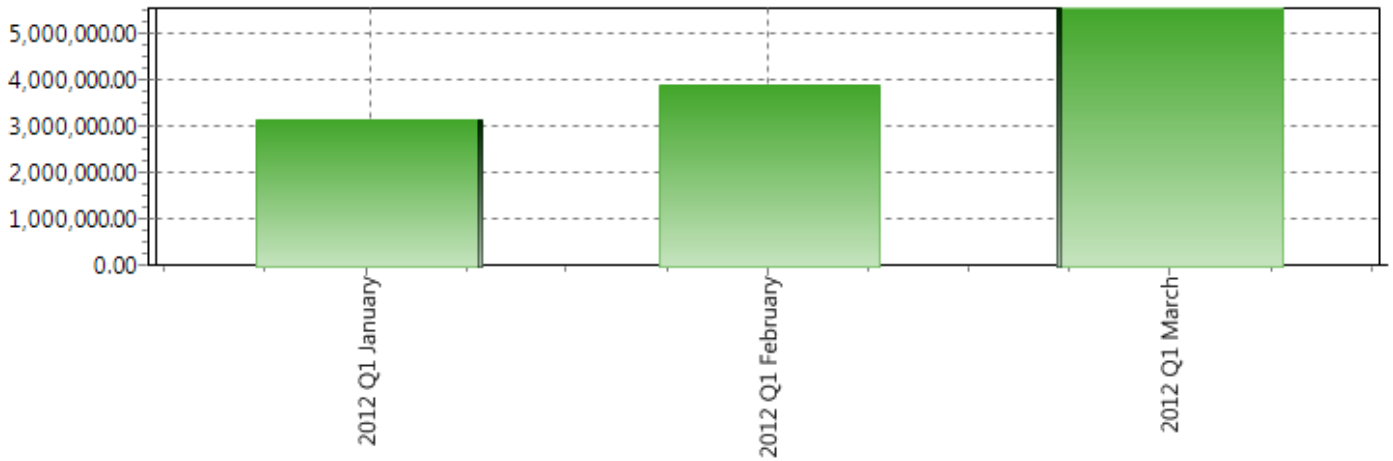
Revenue per Customer Country



…tem



Revenue per Period



Ready

TARGIT - [Shared / Sales / Sample Revenue]

File Edit View Object Tools Help

New Criteria New Help

Company No selection Salesperson No selection Customer No selection

Item

Search for Sentinels

Search Now!

Search your data to discover Sentinels that can give you early warnings

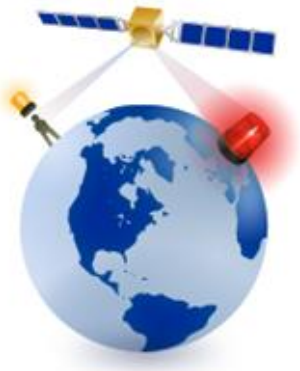
Search Now!

Prediction Measure
Sales cube - Revenue

Time
Period - Month

Source Cubes
Sales cube

Criteria
No criteria specified



Click OK to search for Sentinels that can give at least one Month warning of changes to ∑ Revenue

Alternatively, you can limit the scope by modifying the Criteria or the number of source cubes for the search.

Explanation

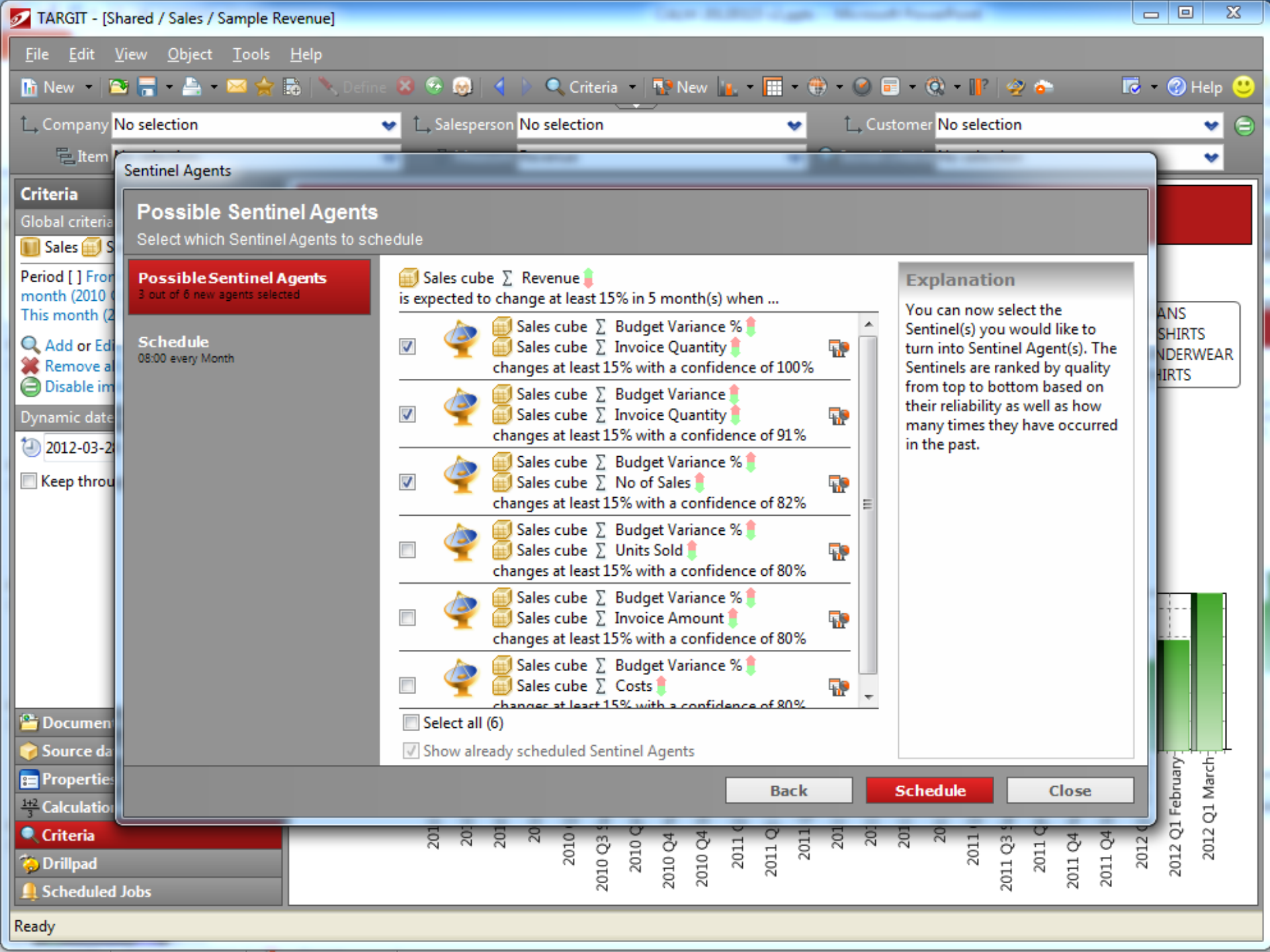
Sentinels are prediction based rules that will allow you to get an early warning. With Sentinels you can expand the horizon for your notification agents and can therefore react faster if the environment around your organization changes.

Ok Cancel

Criteria
Global criteria
Sales
Period [ ] From
month (2010
This month (2
Add or Edit
Remove all
Disable im
Dynamic date
2012-03-2
Keep throu
Documen
Source da
Properties
Calculatio
Criteria
Drillpad
Scheduled Jobs

2010 Q3 2010 Q4 2010 Q4 2011 Q3 2011 Q4 2011 Q4 2012 Q1 February 2012 Q1 March

Ready


TARGIT - [Shared / Sales / Sample Revenue]
File Edit View Object Tools Help
Sentinel Agents
Possible Sentinel Agents
Select which Sentinel Agents to schedule
Possible Sentinel Agents
3 out of 6 new agents selected
Schedule
08:00 every Month
Sales cube ∑ Revenue
is expected to change at least 15% in 5 month(s) when ...
Sales cube ∑ Budget Variance %
Sales cube ∑ Invoice Quantity
changes at least 15% with a confidence of 100%
Sales cube ∑ Budget Variance
Sales cube ∑ Invoice Quantity
changes at least 15% with a confidence of 91%
Sales cube ∑ Budget Variance %
Sales cube ∑ No of Sales
changes at least 15% with a confidence of 82%
Sales cube ∑ Budget Variance %
Sales cube ∑ Units Sold
changes at least 15% with a confidence of 80%
Sales cube ∑ Budget Variance %
Sales cube ∑ Invoice Amount
changes at least 15% with a confidence of 80%
Sales cube ∑ Budget Variance %
Sales cube ∑ Costs
Select all (6)
Show already scheduled Sentinel Agents
Explanation
You can now select the Sentinel(s) you would like to turn into Sentinel Agent(s). The Sentinels are ranked by quality from top to bottom based on their reliability as well as how many times they have occurred in the past.
Back
Schedule
Close
Criteria
Drillpad
Scheduled Jobs
Ready

Human-Computer Synergy

Sentinel Example

Revenue is expected to decrease at least 10% in 3 month(s) because:

- People Involved has increased at least 10%.
- University Revenue has decreased at least 10%.

The prediction has a confidence of 92%.

Click here to TARGIT the notification context, or click here to review the Agent properties.

Notification on your iPhone...

... or your Desktop

M. Middelfart and T.B. Pedersen. Using Sentinel Technology in the TARGIT BI Suite. PVLDB 3(2): 1629–1632, 2010.

It's a War

- Computers can semi- or fully guard our back
  Primarily on Controlled Data
- Humans can dedicate themselves more to
  Analytics on Uncontrolled Data
- What do (not just my own) customers prefer?
  Which opinions are trending? Etc.

Big Data Analytics:

Trends, Hype,

TimeLines

https://socialanalytics.targit.com/TARGITsa/An

TARGIT Cloud | TARGIT #SocialAnalytics

#SocialAnalytics

BETA

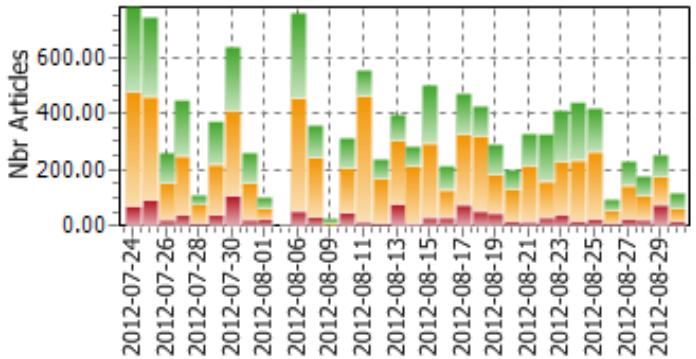
TARGIT business intelligence

My Search Collections | Analyze | Status

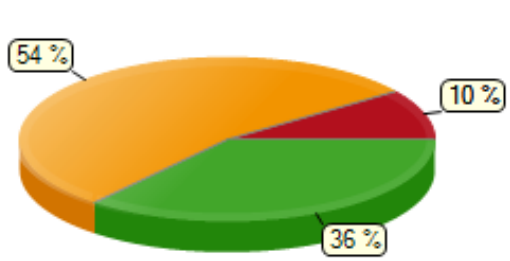
Influencer Analysis | Sentiment Analysis

Location Hierarchy: United States | Search Collection: Business Intelligence "Big Data" | Time Year - Week - Date: Year to date (2012 - 2012 W35

Nbr Articles per Time Year To Date by Article sentiment



Nbr Articles per Article Sentiment Group



Weighted Average per Article Category - Search Terms - Article

Article Category - Search Terms - Article	Hashtags
Total	
Business Intelligence	
"Big Data"	
Good bit of debate about big #data, its relevance and value at the CEO panel of #gbta2012	#Data,
Big data is great, but it is the relevance of the data and how you execute on this that is key! #GBTA2012 #travel	#GBTA2012
#security Content about Computer security | The Big Data Insight Group - Content about Computer security July 27, ... http://t.co/onnSbRfw	#security
'Risks in big data attract big law firms' http://t.co/LOvkfshs #risk #compliance	#risk
IBM Power linux solutions, open source Hadoop solution empowers #business innovators who need a platform to build emerging big data projects	#business
Answer: CUES! Question: What's fast & boosts quality outcomes #in BIG DATA, SEO & Content Curation or Marketing? More perspectives @ManyCUES	#in
#Big Data Important, Open Data More Valuable: Gartner http://t.co/sLNq9dP6	#Big

https://socialanalytics.targit.com/TARGITsa/Ana | TARGIT Cloud | TARGIT #SocialAnalytics

#SocialAnalytics

BETA

TARGIT business intelligence

My Search Collections | Analyze | Status

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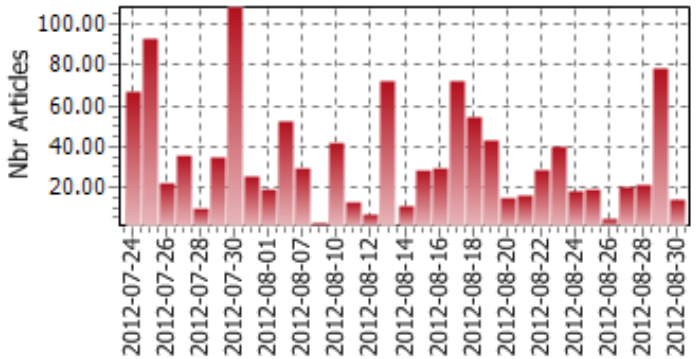
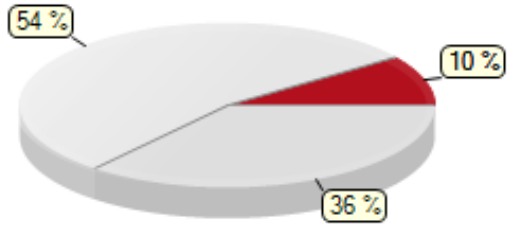
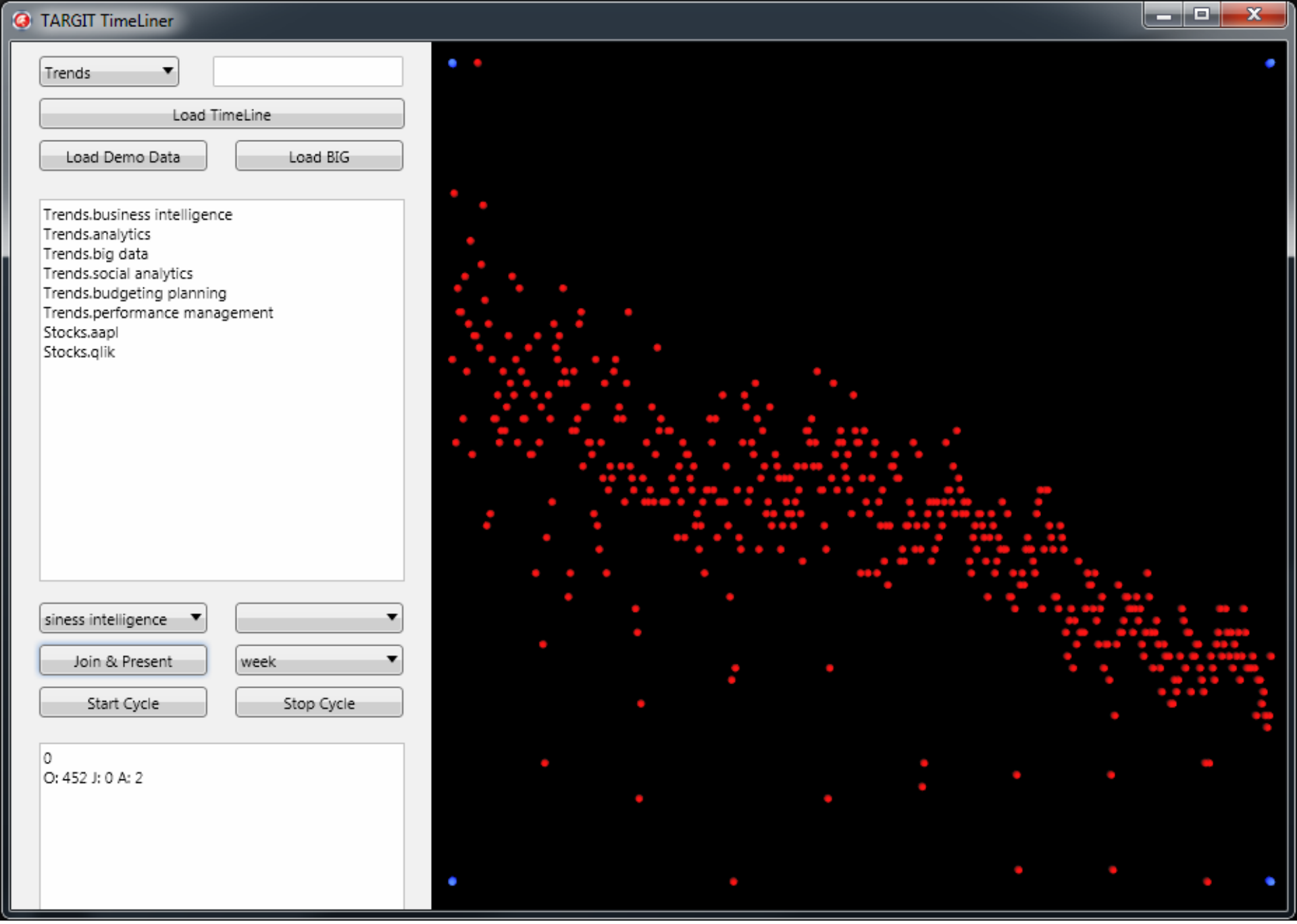


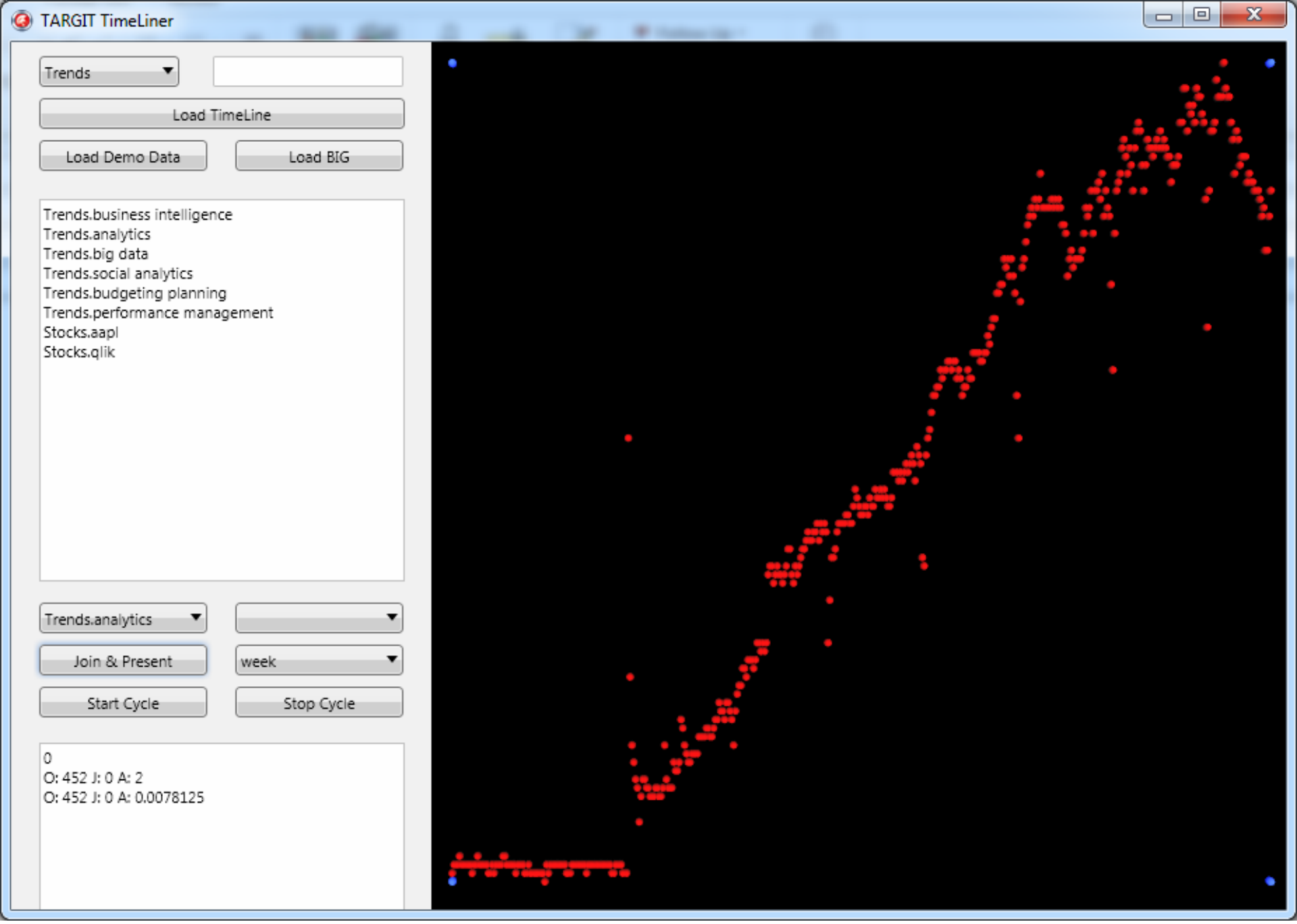
Nbr Articles per Article Sentiment Group



Weighted Average per Article Category - Search Terms - Article

Article Category - Search Terms - Article	Hashtags
Total	
Business Intelligence	
"Big Data"	
Yet another reason worry about surveillance of your activities in Internet: it is cheap http://t.co/eIEdHzdv #dpi #bigdata	#dpi
yay, biodiversity dark data use depends on geosiences big data generation #ltr2012	#ltr2012
-www.securitytube.net: (Bside : - Big Data's Fourth V: Or Why We'll Never Find The Loch Ness Monster http://t.co/wrRA1mY9) #security	#security
WOW...#Analytics can now be used predict where violence will occur in Afghanistan & the level of its intensity http://t.co/jHTq9T0w	#analytics
Words I don't want to read tweets about: "disruption," "white space," "big data," "infographic," "the cloud." #obfuscation	#obfuscation
Woot ! @NickStepanovich only if leadership defaults Big Data trends, if #BigData illuminates Big Thinking then a powerful differentiator	#BigData
Why Big Data for Healthcare is Rubbish http://t.co/9H1XO4up # healthcare #doctors #socialmedia	#doctors


TARGIT TimeLiner
Trends
Load TimeLine
Load Demo Data
Load BIG
Trends.business intelligence
Trends.analytics
Trends.big data
Trends.social analytics
Trends.budgeting planning
Trends.performance management
Stocks.aapl
Stocks.qlik
siness intelligence
Join & Present
week
Start Cycle
Stop Cycle
0
O: 452 J: 0 A: 2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Join & Present
week
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Stop Cycle
0
O: 452 J: 0 A: 2
O: 452 J: 0 A: 0.0078125

TARGIT TimeLiner

Trends

Load TimeLine

Load Demo Data

Load BIG

Trends.business intelligence
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Stocks.aapl
Stocks.qlik

nds.social analytics

Join & Present

week

Start Cycle

Stop Cycle

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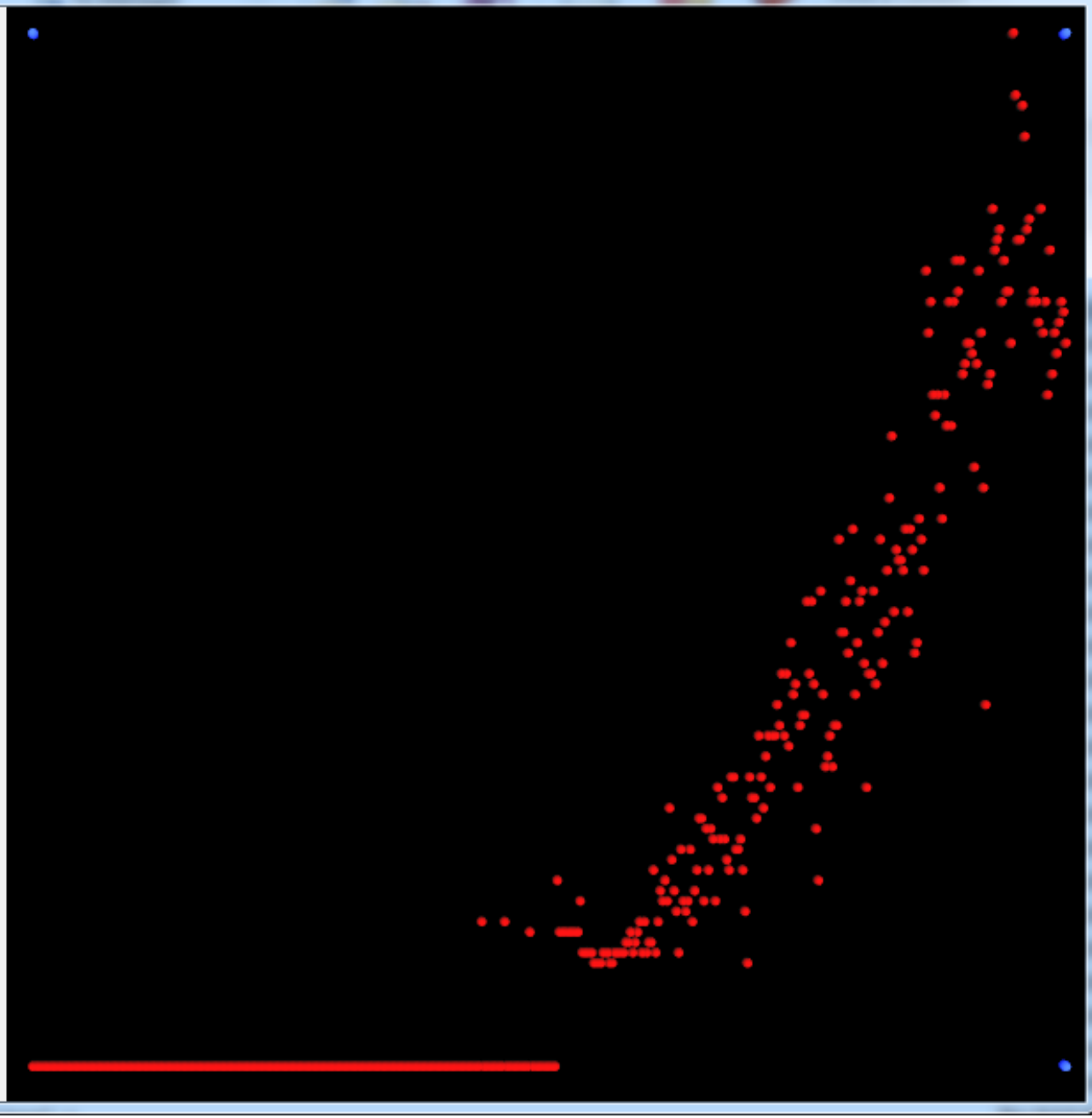
O: 452 J: 0 A: 0.0078125
O: 452 J: 0 A: 0.0078125
O: 452 J: 0 A: 0.0078125



TARGIT TimeLiner

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Join & Present

week

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O: 452 J: 0 A: 2
O: 452 J: 0 A: 0.0078125
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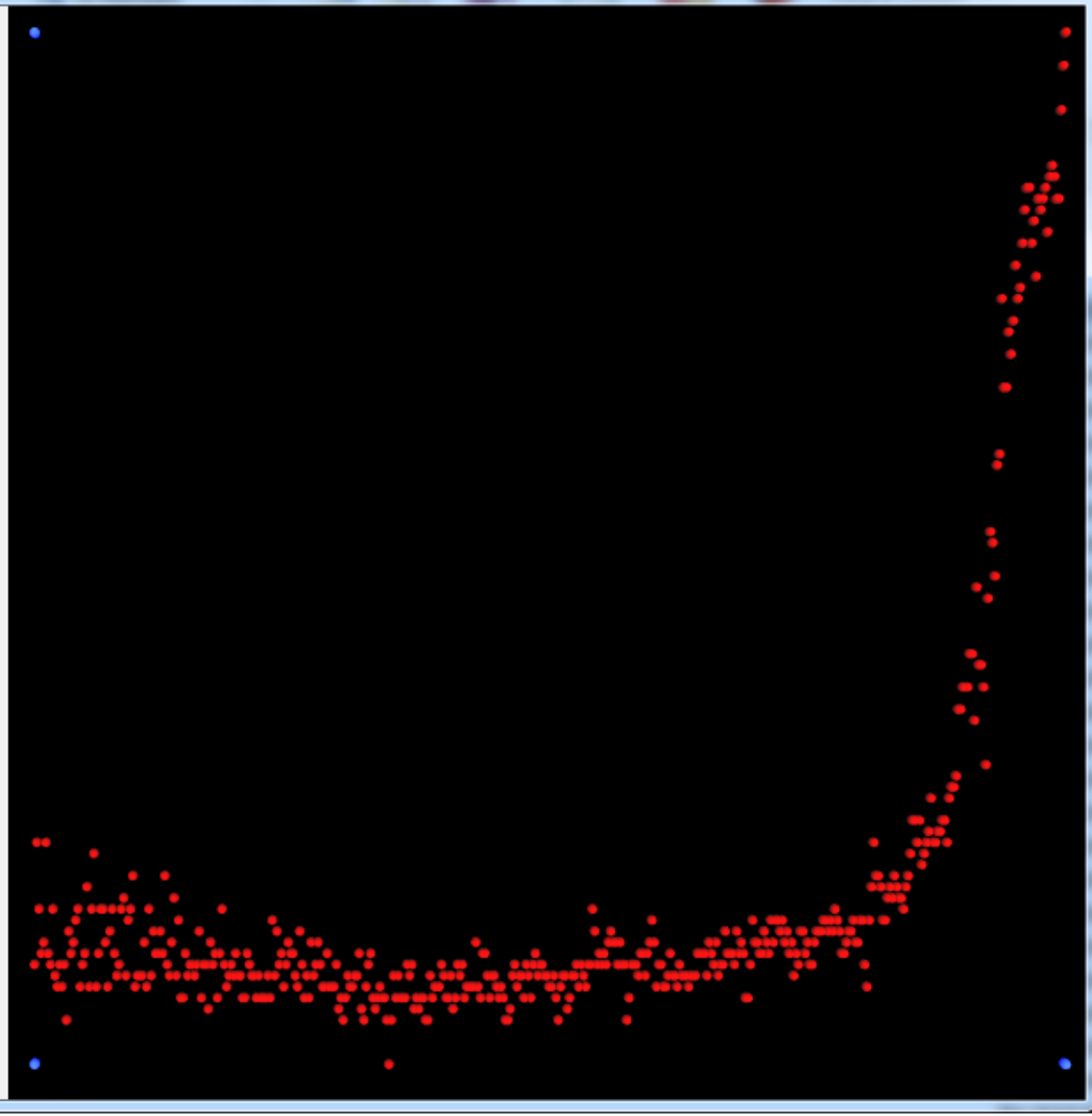

TARGIT TimeLiner

Trends

Load TimeLine

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Trends.business intelligence
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Join & Present

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O: 452 J: 0 A: 2
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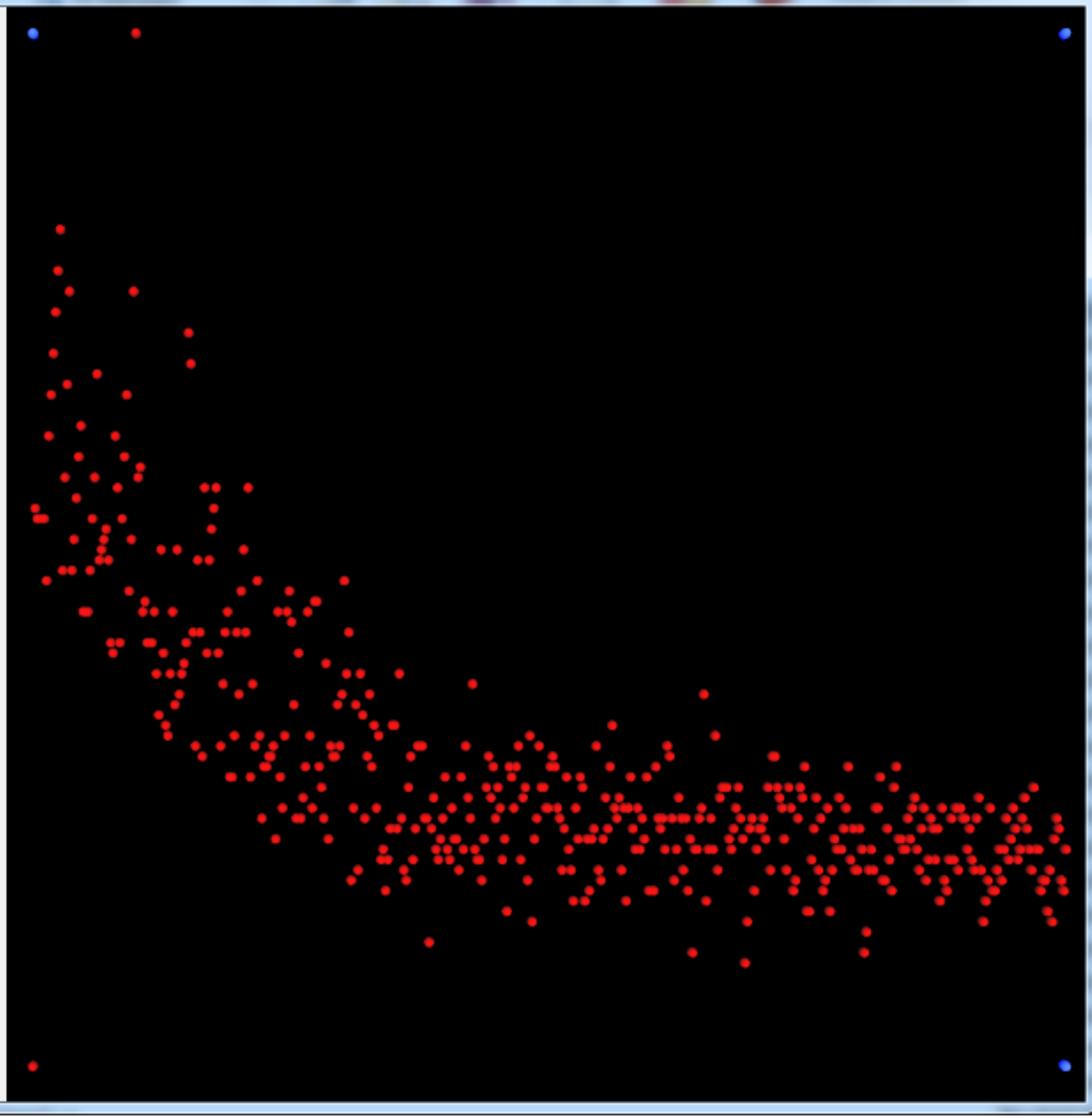

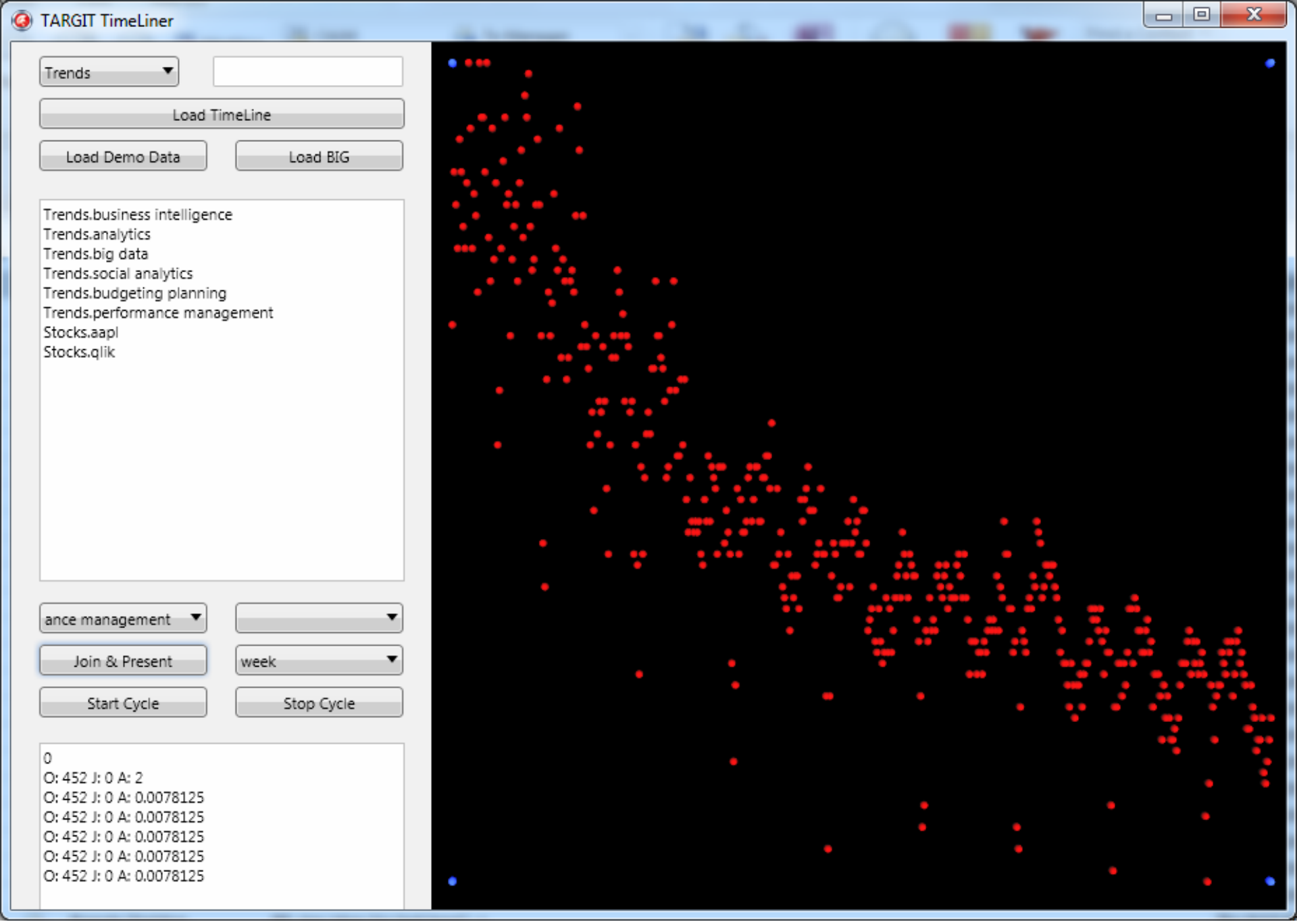
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Stocks.qlik
ance management
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“data is apolitical”

Marissa Mayer
CEO, Yahoo

HBR Blog Network

Using Analytics to Predict Hollywood Blockbusters

by Scott Schlesinger | 10:00 AM October 11, 2012

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TALKS

Eli Pariser: Beware online "filter bubbles"

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As web companies strive to tail
(including news and search res
tastes, there's a dangerous uni
We get trapped in a "filter bubb
to information that could challe
worldview. Eli Pariser argues p
ultimately prove to be bad for u

Pioneering online organizer Eli
"The Filter Bubble," about how
might be narrowing our worldvi

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Our digital lives
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The New Frontier:

Meat Computing

Meat Computing

- There is still such a thing as intuition
- Most companies will be sampling
- **MEAT** will make the most distinguishing decisions what to sample or not to sample

#HumanComputerSynergy

In Conclusion…

Conclusion

- Business Intelligence (BI)

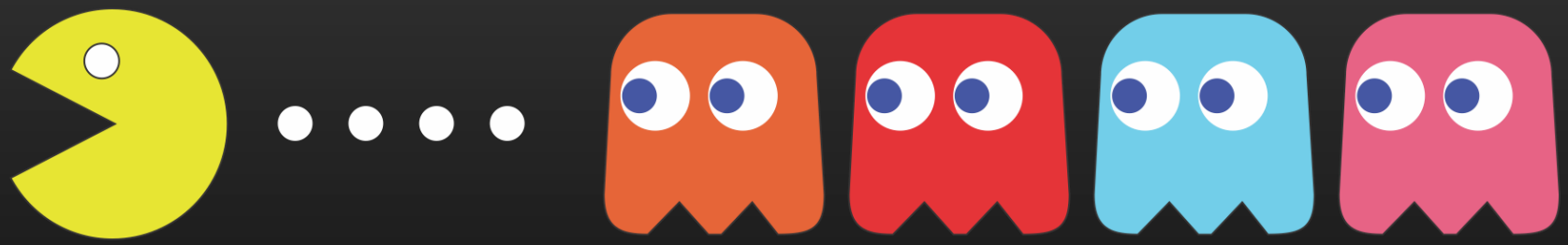
  Gives ”True North” through Reporting, OLAP, and data mining.

  Can be highly automated already today!

- “Analytics” starts where BI ends

  Typically data will not be under our control therefore **BIAS RULES!**

Beat Fear ...



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business intelligence

… and Change the Game

It's more **Fun** to be a **Pirate** than to join the navy

Steve Jobs, 1982.

Info and Research can be found t:

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