BI to the Masses

End-User BI from a Project Management Perspective

Presented by
Dr. Morten Middelfart, TARGIT CTO
Morten Middelfart – Work Background

- 1997–present, CTO of TARGIT A/S, Business Intelligence software company, Denmark
- 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.
The OODA Loop
Organizational Context

Strategic

Tactical

Operational

The OODA loop

action
communication & deployment

decision
knowledge

observation
monitoring & reporting

orientation
analysis

incident
Organizational Deployment

- Strategic
- Tactical
- Operational

Change Frequency + Diversity = Pluralism
Organizational Deployment

- Strategic
- Tactical
- Operational

Create / Maintain Equilibrium

Change Frequency + Diversity = Pluralism
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Create / Maintain Equilibrium
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Organizational Deployment

Strategic

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Organizational Deployment

- **Strategic**
- **Tactical**
- **Operational**

Change Frequency + Diversity = Pluralism
The OODA Loop

Objective

decision

observation

orientation

action
communication & deployment

incident
The CALM Circle (OODA+IT)

**Decision**
- Search for additional Internal & External Knowledge

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

**Observation**
- Dashboards
- Reporting
- Agents

**Orientation**
- Analysis
- Simulation
- Data Mining

**KPI(s)**
- Decision
- Observation
- Communication & Deployment
- Action
- Analysis
- Orientation
- Dashboards
- Reporting
- Agents

**TARGIT your decisions in the fewest clicks**
The CALM Circle

**Decision**
Search for additional Internal & External Knowledge

- Search in Un-structured Data

**Orientation**
Analysis

- Intelligent Analysis (Meta-Morphing)

**Hyper-Relations**

**KPI(s)**

**Action**
Storyboards

- Storyboards

**Communication & Deployment**

- Ad-Hoc Agents & Sentinels

**Workflow Initiation**

- Other Communication

**Modify Cycle**

- Workflow Initiation

**Other Communication**

- Workflow Initiation

**Intelligent Analysis**

- Intelligent Analysis (Meta-Morphing)

**Desktop & Mobile Notifications**

- Reporting Agents

**Search in Un-structured Data**

- Search in Un-structured Data

**Hyper-Relations**

- Desktop & Mobile Notifications

**Search in Un-structured Data**

- Search in Un-structured Data

**Search in Un-structured Data**

- Search in Un-structured Data
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

Decision
Search for additional Internal & External Knowledge

Orientation
Analysis
Simulation
Data Mining

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

Observation
Dashboards
Reporting
Agents

KPI(s)
The CALM Circle

**Decision**
Search for additional Internal & External Knowledge

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

**Orientation**
Analysis
Simulation
Data mining

**Observation**
Dashboards
Reporting
Agents

**TARGIT This & Guided Analysis**
The CALM Circle

Decision
Search for additional Internal & External Knowledge

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

Orientation
Analysis Simulation Data Mining

Observation
Dashboards Reporting Agents

KPI(s)

Hyper-Related OLAP
The CALM Circle

**Decision**
Search for additional Internal & External Knowledge

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

**Orientation**
Analysis Simulation Data Mining

**KPI(s)**

**Smiley**

**Observation**
Dashboards Reporting Agents

**Incident**
The CALM Circle

**Decision**
Search for additional Internal & External Knowledge

**Orientation**
Analysis
Simulation
Data Mining

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

**KPI(s)**

**Smiley**

**Hyper-Related OLAP**

**TARGET This & Guided Analysis**

**Hyper-Related OLAP**

**TARGET This & Guided Analysis**
What is Meta-Morphing?
What is Meta-Morphing?

I would like to see customers
What is Meta-Morphing?

I would like to see customers

Show me revenue
What is Meta-Morphing?

I would like to see customers

List my cost and profit per country

Show me revenue
What is Meta-Morphing?
I would like to see customers
I would like to see customers
Dimensions

- All
- Category
- Product
- Year
- Month
- Day
- Country
- City
- Customers

Measures

- Revenue
- Cost
- Profit

Show me revenue
Dimensions

- All
- Category
- Product
- Year
- Month
- Day
- Country
- City
- Customers

Measures

- Revenue
- Cost
- Profit

Show me revenue

Sentence parse
All
Category
Product
Year
Month
Day
Country
City
Customers

Dimensions

Measures

Revenue
Cost
Profit

Revenue

Sentence parse
List my cost and profit per country
List my cost and profit per country
(a) Cube meta-data

Dimensions
- All
- Category
- Product
- Year
- Month
- Day
- Country
- City
- Customers

Measures
- Revenue
- Cost
- Profit

(b) Questions

I would like to see customers

Show me revenue

List my cost and profit per country

(c) Associations

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<thead>
<tr>
<th>Dimension</th>
<th>Measure</th>
<th>Used Count</th>
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<tr>
<td>Customers</td>
<td>Revenue</td>
<td>3</td>
</tr>
<tr>
<td>Country</td>
<td>Profit</td>
<td>2</td>
</tr>
<tr>
<td>Country</td>
<td>Cost</td>
<td>1</td>
</tr>
<tr>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
</tbody>
</table>

(d) Presentation preferences

<table>
<thead>
<tr>
<th>Answer</th>
<th>Preference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customers, Revenue</td>
<td>Pie chart</td>
</tr>
<tr>
<td>Country, Profit</td>
<td>Bar chart</td>
</tr>
<tr>
<td>Country, Cost</td>
<td>Bar chart</td>
</tr>
<tr>
<td>Country, Cost, Profit</td>
<td>Crosstab</td>
</tr>
<tr>
<td>...</td>
<td>...</td>
</tr>
</tbody>
</table>
The CALM Circle

**Decision**
Search for additional Internal & External Knowledge

**Orientation**
Analysis
Simulation
Data Mining

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

**KPI(s)**
- Smiley
- TARGIT This & Guided Analysis
- Hyper-Related OLAP

**Observation**
Dashboards
Reporting
Agents

**Search for additional**
Internal & External Knowledge

**Communication & deployment**

**Notice:**
- TARGIT your decisions in the fewest clicks
References


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
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?
TARGIT your decisions in fewest clicks

- Strategic
- Tactical
- Operational
TARGIT your decisions in fewest clicks

Strategic

Tactical

Operational
TARGIT your decisions in fewest clicks
TARGIT your decisions in fewest clicks.
Facts Beat Fear

#HumanComputerSynergy
#FactBeatFear
The OODA Loop

1. **Observation**: Monitoring and identifying potential incidents.
2. **Orientation**: Analyzing and interpreting the observed data.
3. **Decision**: Using the analyzed data to make informed decisions.
4. **Action**: Implementing the decision, communicating, and deploying the necessary actions.

Central to this loop is the **KPI(s)**: Key Performance Indicators that help measure the effectiveness of the decisions and actions. The cycle continues with another observation, ensuring ongoing monitoring and adaptation.
The CALM Cycle

Decision
Search for additional Internal & External Knowledge

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

Orientation
Analytics Simulation Data Mining

Observation
Dashboards Reporting Agents

KPI(s)

TARGIT your decisions in fewest clicks

Strategic

Tactical

Operational
TARGIT your decisions in fewest clicks

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

- or make you FAIL!
It’s a War
Kevin Slavin: How algorithms shape our world

TEDtalksDirector  Subscribe  1,213 videos

Uploaded by TEDtalksDirector on Jul 21, 2011

http://www.ted.com Kevin Slavin argues that we're living in a computer-generated world, and the algorithms that power our digital lives are changing the way we live and interact. He explores the implications of this shift and the potential for a post-algorithmic future.
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
Synergy between humans

TARGIT your decisions in fewest clicks
TARGIT your decisions in fewest clicks

Synergy between humans

Strengths

Weaknesses

Strengths

Weaknesses
Synergy between humans

TARGIT your decisions in fewest clicks
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

**Orientation**
Analytics Simulation Data Mining

**Observation**
Dashboards Reporting Agents

KPI(s)
It’s a War: Human-Computer Synergy

**Decision**
Search for additional Internal & External Knowledge

**Orientation**
Analytics, Simulation, Data Mining

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

- Ad-Hoc Agents
- Desktop & Mobile Notifications
  - Reporting Agents

- Sentinel Mining

**KPI(s)**

TARGIT your decisions in fewest clicks
TARGIT your decisions in fewest clicks

Strategic

Tactical

Operational
TARGIT - [Shared / Sales / Sample Revenue]

Criteria
Global criteria
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

Ready
TARGIT your decisions in fewest clicks

SALES REVENUE | January 2012 and Q1 2012

Revenue per Customer Country

Revenue per Period

2012 Q1 January 2012 Q1 February 2012 Q1 March

JEANS: 49%
T-SHIRTS: 34%
UNDERWEAR: 17%
SHIRTS: 0%
Search Now!
Search your data to discover Sentinels that can give you early warnings

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.
TARGIT your decisions in fewest clicks

Possible Sentinel Agents
Select which Sentinel Agents to schedule

Schedule
08:00 every Month

Sales cube $\sum $ Revenue is expected to change at least 15% in 5 month(s) when ...
- Sales cube $\sum $ Budget Variance % changes at least 15% with a confidence of 100%
- Sales cube $\sum $ Invoice Quantity changes at least 15% with a confidence of 91%
- Sales cube $\sum $ No of Sales changes at least 15% with a confidence of 82%
- Sales cube $\sum $ Units Sold changes at least 15% with a confidence of 80%
- Sales cube $\sum $ Invoice Amount changes at least 15% with a confidence of 80%
- Sales cube $\sum $ Costs changes at least 15% with a confidence of 80%

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.
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.
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
#SocialAnalytics

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

- Negative Sentiment
- Neutral Sentiment
- Positive Sentiment

54% 10% 36%

Weighted Average per Article Category - Search Terms - Article

Hashtags

- Business Intelligence
  - "Big Data"
    - Yet another reason worry about surveillance of your activities in Internet: it is cheap http://t.co/e1EdHzdv #dpi #bigdata
    - yay, biodiversity dark data use depends on geosciences big data generation #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
    - WOW...#Analytics can now be used predict where violence will occur in Afghanistan & the level of its intensity http://t.co/jHtq9T0w
    - Words I don't want to read tweets about: "disruption," "white space," "big data," "infographic," "the cloud." #obfuscation
    - Woot! @NickStepanovich only if leadership defaults Big Data trends, if #BigData illuminates Big Thinking then a powerful differentiator
    - Why Big Data for Healthcare is Rubbish http://t.co/9H1X0I4up #healthcare #doctors #socialmedia

- Total

#dpi
#ltr2012
#security
#analytics
#obfuscation
#BigData
#doctors
Trends.business intelligence
Trends.analytics
Trends.big data
Trends.social analytics
Trends.budgeting planning
Trends.performance management
Stocks.aapl
Stocksqlik

0
Q: 452 J: 0 A: 2
O: 452 J: 0 A: 0.0078125
“data is apolitical”

Marissa Mayer
CEO, Yahoo
Using Analytics to Predict Hollywood Blockbusters

by Scott Schlesinger  |  10:00 AM October 11, 2012
Eli Pariser: Beware online "filter bubbles"

As web companies strive to tailor the information that could challenge our worldview. Eli Pariser argues that filter bubbles may be bad for us.
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...
TARGIT your decisions in fewest clicks
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 ...
TARGIT your decisions in fewest clicks
... and Change the Game
It's more **Fun** to be a **Pirate** than to join the navy

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Info and Research can be found at:

targit.com/research

Twitter: @dr_morton

#HumanComputerSynergy
#FactBeatFear