IT APPLICATIONS IN BUSINESS ANALYTICS

SS2016 / Lecture 13 – Information Design
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Let’s get started…
Information Design
Information Design

Definition

**Information Design** is the practice of presenting **information** in a way that **fosters efficient and effective understanding** of it.

The term has come to be used specifically for graphic **design** for displaying **information effectively**, rather than just attractively or for artistic expression.
Information Design

Relevance

Area of Relevance

Data → Info → Insight → Action
Wisdom builds on our past to give us new understanding and, by incorporating values, judgment and experience, the ability to predict.

Understanding is cognitive and analytical. It is the process by which one can synthesize new knowledge from what was already known.

Knowledge is information aggregated to a point where it has meaning and purpose – the how.

Data becomes information when it has meaning and we understand context and relationship – the who, what, where, and when.

Information Design

WHERE TOP 25 SCHOOL GRADS GO
PERCENT WHO MOVE TO ANOTHER REGION WITHIN 5 YEARS OF GRADUATING

West Coast
West
Midwest
Northeast
South

25%
20%
33%
9%
13%
43%
17%

https://www.linkedin.com/pulse/data-graphics-internship-join-earnest-summer-journalism-chang
Information Design
Definition

Collaboration
The most successful solutions to information design problems are produced by teams of experts from many different areas:

Cognitive Psychologists
and applied psychologists who understand how people interact with messages and perform tasks

Writers and Linguists
who can transform complex ideas into useful, plain English

Testing Experts
who can devise testing means for substantiating the effectiveness of a design solution

Designers
concerned with human performance—what design does as distinct from how design looks

It is not just a concern for the communicative facet of graphic design, but also a concern for the behavioral reactions that occur after communication has taken place
Information Design

The Decade in Design

Paradigm Society Finance Politics Ecology Technology Media Web Industrial Design Architecture Art Fashion Personnel Brands Tragedy

1. No Logo, Naomi Klein's treatise on anti-globalisation, sets the tone for the decade's debates about consumerism and brand.
2. Apple's first retail store opens in Chicago, announcing the first generation iPod, which will hold 5GB of music.
3. The Minion is introduced.
4. Design Within Reach opens its first retail store, introducing mid-century design to the masses.
5. George Nelson and Charles Ray release their first design.
6. The One Laptop per Child project is announced by Nicholas Negroponte. The time-giving laptop designed by Yves Behar.
7. Target debuts the Clever Rx pharmacy bottle, a redesign of the classic pharmacy bottle.
8. Architecture for Humanity's 2005 Polar Prize winners are announced, featuring the launch of the Open Architectural Network, allowing architects to easily share and test practices for building affordable, sustainable structures.
9. The type-focused documentary Helvetica, directed by Gary Hustwit, premiers at South by Southwest. The same time and place as another type-focused product debuts: Taggie.
10. Design for the Other 98% opens at the Cooper Hewitt.

http://www.80211.cc/images/id/decade_of_design_06-01.jpg
Section from a Bach Suite BWV 1067.
Source: Edition Peters 4921
Information Design

Information Design

Helvetica Neue 25 Ultra Light
Helvetica Neue 35 Thin
Helvetica Neue 45 Light
Helvetica Neue 55 Roman
Helvetica Neue 65 Medium
Helvetica Neue 75 Bold
Helvetica Neue 85 Heavy
Helvetica Neue 95 Black
A map.
Source: OpenStreetMap
how stuff works...

Acoustic guitar

It is one of the most prominent musical instruments in history. Created in the 1500s, the guitar has strummed its way to popular culture by playing to a variety of musical styles, from flamenco to rock. Without the acoustic guitar, music, as we know it today, will less likely strike a chord.

Main types of acoustic guitars

- **Classical guitar**: Nylon strings; wider fingerboard for finger picking
- **Steel-string acoustic**: Steel strings; narrower fingerboard optimized for 'pick' playing
- **Archtop**: Steel strings; arched top and back; F-holes similar to violin

Generating sound

The guitar’s body design is very crucial. The most important piece is the soundboard mounted on the front of the body. Its job is to make the guitar’s sound loud enough for us to hear. The two soundings called 'bouts' also affect the tone.

1. Upper bout
   - Accentuates higher tones
   - When picked or strummed, strings vibrate

2. Lower bout
   - Accentuates lower tones
   - Vibrations are transmitted to the saddle and bridge

3. Soundboard
   - Vibrations then flow to the soundboard and body

4. Sound comes out

Holding an acoustic guitar

Proper form in holding the guitar positively affects your playing.

- Classical guitar
  - Guitar rests on your right thigh, left wrist under the fretboard; use foot rest for support

- Nut
- Fret
- Fretboard
- Tuning peg
- Neck
- Sound hole
- Bridge
Information Design Flaws
Information Design Flaws

Mehr Entscheidungsträger
denn je lesen den STANDARD.

2005 17,9%
2005 18,8%
2007 19,5%
Information Design Flaws

![Currency Exchange Rate Graph]

1 EUR/CHF

1.4079 CHF

Tag: -1.70% (-0.0243)
Jahr: -3.47% (-0.05)

Typ: Währung

Intraday Chart

06.05.10, 16:16 | -1.69 % | Intervall: 1 Min.

1.435

1.43

1.405

NZZ
Information Design Flaws

SCHNELL UND BILLIG. ADSL VON TELE2.

Monatstarife für 256 kbps

49 SFr. 49 SFr.

44 SFr.

Tele2 Sunrise Bluewin

Angaben in SFr. monatlich
Information Design Flaws

Food Division
Net Sales in mEUR
2012..2015

Belgium
12 13 14 15 PL
6 10 19 20

France
12 13 14 15 PL
17 19 10 7

Sweden
12 13 14 15 PL
16 19 21 16

USA
12 13 14 15 PL
19 19 20 12

Graphical Display of Net Sales Development (in Mill. Euro)

Division Food
Net Sales Belgium (Mio. €)

Mio EUR
2012 2013 2014 2015(P)
6.21 9.92 19.23 19.91

Division Food
Net Sales France (Mio. €)

Mio EUR
2012 2013 2014 2015(P)
16.51 18.95 10.36 7.17

Division Food
Net Sales Sweden (Mio. €)

Mio EUR
2012 2013 2014 2015(P)
15.45 19.14 20.54 16.05

Division Food
Net Sales USA (Mio. €)

Mio EUR
2012 2013 2014 2015(P)
18.70 18.65 20.35 11.89

Comments: none
Information Design Flaws
Information Design Flaws

Question topics are used in the legend. The displayed chart can be edited by selecting options on the left tool bar.
Information Design Flaws
Information Design Flaws
Information Design Flaws

Truth 1

Our average annual growth rate in net sales is eight percent

Division AFG
Net Sales in mEUR
2011..2014
Information Design Flaws

Truth 2

Due to inflation and currency fluctuation, 2014 will be our least successful year.

Division AFG
Net Sales in mEUR
2006..2014

Currency
Inflation

2006 2007 2008 2009 2010 2011 2012 2013 2014

429 423 421 421 451 389 401 390 388

305 327 366

PL
Information Design Flaws

Truth 3

The 2014 loss will increase by 10 mill. EUR

Division AFG
Net Sales and EBIT in mEUR
2006..2014
S.U.C.C.E.S.S.
S.U.C.C.E.S.S.

- Prof. Dr. Rolf Hichert
- Hichert defined a comprehensive set of rules for improving formal business communication: HICHERT®SUCCESS rules.
- HICHERT®SUCCESS has become the set of rules upon which many customer-specific notation manuals in large organizations, such as Philips and German Telekom

source: [http://www.hichert.com](http://www.hichert.com)
S.U.C.C.E.S.S.

**SAY**  
**Deliver messages:** Reports and presentations serve to convey messages to readers and listeners.

**UNIFY**  
**Standardize content:** Reports and presentations are more easily understood when the content displayed adheres to a uniform concept of meaning.

**CONDENSE**  
**Concentrate information:** Reports and presentations are better understood when the contents have a high level of information density.

**CHECK**  
**Ensure quality:** Reports and presentations are credible when the conveyed content is based on correct, appropriate, and current data.

**ENABLE**  
**Implement concept:** Organizational, personnel-related, and technical requirements must be met in order to implement the rules.

**SIMPLIFY**  
**Avoid complication:** Reports and presentations are better understood when noise and redundancy are avoided.

**STRUCTURE**  
**Group content:** Reports and presentations should adhere to the requirements for homogeneous, mutually exclusive, and exhaustive structures.

source: http://www.hichert.com
S.U.C.C.E.S.S.

SUCCESS RULES

Say
- Keep messages clear and simple.

Unify
- Use consistent formats and colors.

Condense
- Remove unnecessary details.

Check
- Ensure accuracy and completeness.

Express
- Use visuals to convey ideas.

Simplify
- Streamline information.

Structure
- Organize content logically.

source: http://www.hichert.com
The process to support decision making…

(A) **Provide data and systems**
   This stage in the process concerns providing correct, useful, and timely data as well as appropriate systems to be used for analyzing and reporting. It will typically be executed by IT departments.

(B) **Analyze data and create messages**
   In this stage, the data is to be analyzed in order to get a clear view of the business status. It will typically be executed by business analysts. As a result, the analysts will deliver their findings resp. messages in the form of reports and presentations.

(C) **Evaluate messages and make decisions**
   In this stage, executives make decisions based on their evaluation of the reports and presentations.
The benefits of introducing notation standards in business communication…

(1) **Improved quality**
The quality of the deliverables in every process stage will increase. This means more readily understood dashboards, clearer messages in better comprehensible reports, and – ultimately – better decisions.

(2) **Reduced reaction time**
The speed of the overall decision-making process will increase. The delivery time of new dashboards will be shorter, business analysts can answer the questions more quickly, and executives make sound decisions faster.

(3) **Reduced costs**
Saving time in the delivery of dashboards, in the analysis of data, and in the creation of reports and presentations will reduce costs. But reducing the time executives spend on trying to understand the reports will be the biggest advantage.
The additional expenses of mEUR 187 in 2013 could mainly be compensated by higher license sales (mEUR +183)

Software and Service Group
Profit and loss statement in mEUR 2012, 2013 and ΔPY, ΔPY%

<table>
<thead>
<tr>
<th>Category</th>
<th>2012</th>
<th>2013</th>
<th>ΔPY</th>
<th>ΔPY%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Licences</td>
<td>713</td>
<td>896</td>
<td>183</td>
<td>+26</td>
</tr>
<tr>
<td>Consulting</td>
<td>72</td>
<td>90</td>
<td>18</td>
<td>+25</td>
</tr>
<tr>
<td>Maintenance</td>
<td>22</td>
<td>10</td>
<td>-12</td>
<td>-55</td>
</tr>
<tr>
<td>Other revenue</td>
<td>6</td>
<td>65</td>
<td>59</td>
<td>+983</td>
</tr>
<tr>
<td>Sales revenue</td>
<td>813</td>
<td>1661</td>
<td>248</td>
<td>+31</td>
</tr>
<tr>
<td>Other op. income</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Purchases</td>
<td>-344</td>
<td>-379</td>
<td>-35</td>
<td>-10</td>
</tr>
<tr>
<td>Material expenses</td>
<td>-11</td>
<td>-54</td>
<td>-43</td>
<td>-57</td>
</tr>
<tr>
<td>Personnel expenses</td>
<td>-76</td>
<td>-127</td>
<td>-51</td>
<td></td>
</tr>
<tr>
<td>Amortization</td>
<td>-56</td>
<td>-40</td>
<td>16</td>
<td>+29</td>
</tr>
<tr>
<td>Other op. expenses</td>
<td>-78</td>
<td>-152</td>
<td>-74</td>
<td>-95</td>
</tr>
<tr>
<td>Operating profit</td>
<td>293</td>
<td>326</td>
<td>33</td>
<td>+11</td>
</tr>
<tr>
<td>Investment income</td>
<td>43</td>
<td>53</td>
<td>10</td>
<td>+23</td>
</tr>
<tr>
<td>Financial income, net</td>
<td>73</td>
<td>86</td>
<td>-7</td>
<td>-10</td>
</tr>
<tr>
<td>Profit before tax</td>
<td>409</td>
<td>445</td>
<td>36</td>
<td>+9</td>
</tr>
<tr>
<td>Income tax</td>
<td>-132</td>
<td>-111</td>
<td>21</td>
<td>+16</td>
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<tr>
<td>Profit after tax</td>
<td>-277</td>
<td>-334</td>
<td>57</td>
<td>+21</td>
</tr>
<tr>
<td>Profit to other interests</td>
<td>-89</td>
<td>-55</td>
<td>34</td>
<td>+38</td>
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<tr>
<td>Group profit</td>
<td>188</td>
<td>279</td>
<td>91</td>
<td>+48</td>
</tr>
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</table>
### Key Metrics YTD

<table>
<thead>
<tr>
<th>Metric</th>
<th>% of Target</th>
<th>Actual</th>
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</thead>
<tbody>
<tr>
<td>Revenue</td>
<td></td>
<td>$913,394</td>
</tr>
<tr>
<td>Profit</td>
<td></td>
<td>$193,865</td>
</tr>
<tr>
<td>Avg Order Size</td>
<td></td>
<td>$5,766</td>
</tr>
<tr>
<td>On Time Delivery</td>
<td>104%</td>
<td></td>
</tr>
<tr>
<td>New Customers</td>
<td></td>
<td>1,247</td>
</tr>
<tr>
<td>Cust Satisfaction</td>
<td>4.73 / 5</td>
<td></td>
</tr>
<tr>
<td>Market Share</td>
<td>19%</td>
<td></td>
</tr>
</tbody>
</table>
Cluster | Number of Projects | Weighted Sales Volume year 1 (net) | Absolute Sales Volume year 1 (net) | Column Chart | Stacked Bar Chart
---|---|---|---|---|---
1.911 | 54 | 19.111 | 19.111 | Indicates the relative amount of the weighted Sales Volume in comparison to other clusters | Indicates the distribution of how long the project has been in the current state. Aging in days (bars left to right): >90, >60, >30, <=30

**Total Pipeline**

<table>
<thead>
<tr>
<th>This year</th>
<th>Next year</th>
<th>all</th>
<th>Total Pipeline</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>54</td>
<td>71</td>
<td>58</td>
</tr>
<tr>
<td>195</td>
<td>1,911</td>
<td>7.623</td>
<td>11.348</td>
</tr>
<tr>
<td>3.890</td>
<td>19.111</td>
<td>25.409</td>
<td>18.914</td>
</tr>
</tbody>
</table>
Personal Target 2012

<table>
<thead>
<tr>
<th>Year to date</th>
<th>Year to go</th>
<th>Forecast</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan 55</td>
<td>Jul 14</td>
<td>7.700</td>
</tr>
<tr>
<td>Feb 58</td>
<td>Aug 46</td>
<td>7.700</td>
</tr>
<tr>
<td>Mar 66</td>
<td>Sep 38</td>
<td></td>
</tr>
<tr>
<td>Apr 51</td>
<td>Oct 52</td>
<td></td>
</tr>
<tr>
<td>May 53</td>
<td>Nov 30</td>
<td></td>
</tr>
<tr>
<td>Jun 62</td>
<td>Dec 48</td>
<td></td>
</tr>
<tr>
<td><strong>58% 3.879</strong></td>
<td><strong>42% 3.045</strong></td>
<td><strong>7.956</strong></td>
</tr>
</tbody>
</table>

**Target**

**Comfort Zone**

Historic month: Jan 55 - Jun 62

Current month: Jul 14 - Dec 48

Future month:

+6%:

Pipeline:

+13%:
Lecture Summary & Homework
Literature

- Visit [www.hichert.com](http://www.hichert.com)
Literature

- Visit Stephen Few
  https://www.perceptualledge.com/blog/

- Visit Edward Tufte
  https://www.edwardtufte.com/tufte/
Any Questions?