

# Counting Function Points for Websites - Known Issues and New Guidelines

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1<sup>st</sup> Functional Sizing Summit  
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# Agenda

- ❑ Web systems counting issues
- ❑ Function Point counting guidelines
- ❑ Case study
- ❑ Conclusions (?)
- ❑ Some more...

# Web-based Systems and their Goals

- A “web system” is...
  - A whole website
  - A section
  - ???
- Information
  - Publishing, Research, Product Showcase, etc.
- Operation/transaction
  - E-commerce, Online Trading & Banking, Process integration, etc.
- Exchange/relationship
  - Forum, chat, community, newsgroup, etc.

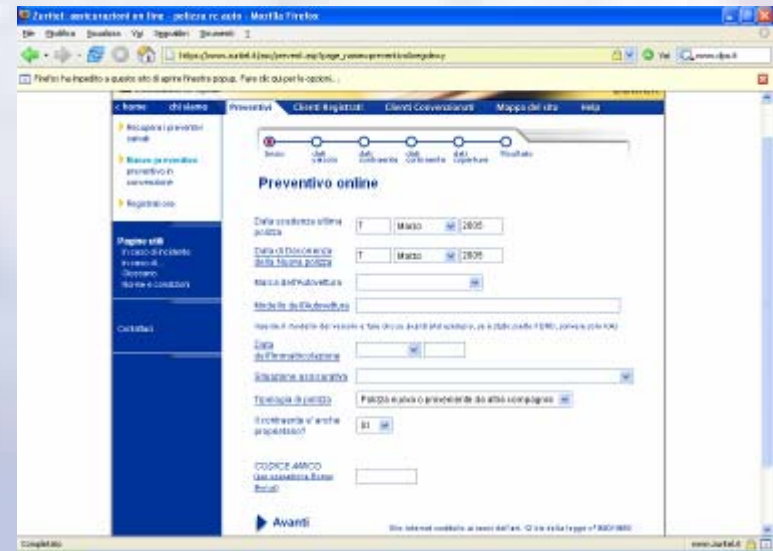


# Web Sites vs Web Applications



Web Sites

## Web Applications



# Web Systems Analysis

- Functional component
  - Browsable information
    - Information creation/update
    - Information query
  - Operational data transactions
    - We should know how to measure that!
- Presentation component
  - Multimedia

# Counting Issues

- ❑ Information component
  - ❑ Information appears as de-structured data
  - ❑ I/O processes are mixed up for presentation and performance reasons
- ❑ Abstraction level
  - ❑ Information contents vs. underlying structure blocks
- ❑ Multimedia component
  - ❑ Represents useful data or not (if yes, unusual formats)
- ❑ What about productivity?
  - ❑ Web site lifecycle
  - ❑ Enhancement, maintenance and publishing

# Oldies Goldies vs. Nowadays



```

<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML
4.0 Transitional//EN" >
<!-- saved from url=(0035)http://www.aaa.bb/ -
->
<HTML><HEAD><TITLE>Abcdefg</TITLE>
<META http-equiv=Content-Type
content="text/html; charset=windows-
1252">
<META content="MSHTML 5.50.4134.600"
name=GENERATOR></HEAD><FRAMESET
border=0 frameSpacing=0 frameBorder=0
cols=136,*><FRAME name=barra
src="Best Western - Italia_file/barra.htm"
noResize scrolling=no><FRAME
name=MAIN src="Best Western -
Italia_file/98033_a.htm"
noResize><NOFRAMES>
<BODY> ... .. </BODY>
</NOFRAMES></FRAMESET></HTML>

```

# Technical Components, Formats, Aspects

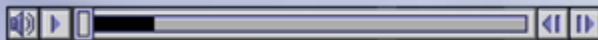
- Text/Code (HTML, Java, ASP, Javascript, ... ..)



- Images (GIF, JPG, PNG, ...)



- Audio/Video (MP3, Real Audio, MPEG, WMV, ...)



- Mixed types (ZIP, PDF, Flash, ... ..)

- Web-site structure

- Hypertext

- Database contents

- Images

- Movies

- Audio

- Interactive 3D

- ...



# The “abstraction level” cannot be ignored

□ Model, Abstraction, Point of View (generalized)

□ Abstraction level

□ Content driven

The screenshot shows the website interface for the Italian Treasury Department (Dipartimento del Tesoro). The main content area is divided into several blocks:

- BLOCCO 1:** Debito Pubblico (Public Debt)
- BLOCCO 3:** Collocamenti Titoli di Stato (State Securities Placements)
- BLOCCO 4:** Collocamenti Titoli di Stato (State Securities Placements)
- BLOCCO 5:** Cosa c'è di nuovo (What's new) - Risultato del collocamento del nuovo BTP a 5 anni indicizzato all'inflazione dell'area Euro.
- BLOCCO 6:** Linee Strategiche del Debito Pubblico (Public Debt Strategies)
- BLOCCO 7:** Calendario Emissioni Titoli di Stato 2005 (State Securities Issuance Calendar 2005)
- BLOCCO 8:** Calendario Anni Rappresentativi all'Inflazione (Representative Years Calendar for Inflation)

□ Structure driven

□ Structure (blocks),

This screenshot shows a more detailed view of the website's structure, highlighting specific content blocks:

- BLOCCO 3:** Linee Strategiche del Debito Pubblico
- BLOCCO 8:** Calendario Anni Rappresentativi all'Inflazione
- BLOCCO 4:** Collocamenti Titoli di Stato

Contents

This screenshot shows the 'Cosa c'è di nuovo' (What's new) section of the website, providing detailed information about the latest state securities placement:

**Cosa c'è di nuovo**

RISULTATO DEL COLLOCAMENTO DEL NUOVO BTP A 5 ANNI INDICIZZATO ALL'INFLAZIONE DELL'AREA EURO  
GRADUATORIA SPECIALISTE IN TITOLI DI STATO (GENNAIO 2005)  
BOLLETTINO TRIMESTRALE - 4° TRIMESTRE 2004  
MERCATO DEI BOND: AL MINISTERO TRE PRESTIGIOSI PREMI INTERNAZIONALI GLOBAL BOND IN DOLLARI USA: RISULTATI DEL COLLOCAMENTO EMISSIONE IN FRANCHI SVIZZERI 05.01.2005  
ARCHIVIO DATI STORICI SUL SITO

# Web System User

The **end user** is who looks for the information exposed by the web system. But we should consider also:

- ❑ the system owner
- ❑ the system administrator
- ❑ (the webmaster)
- ❑ the “internal side” operator  
(who updates owned data)

# Determine Type of Count

<b>Enhancement</b>	<b>Content Mgmt (Publishing)</b>
Functionality structure stability	Functionality structure volatility
User cannot update	User has update capability
Multiple data instances over constant structures	Unique data items over varying structures
Automated layout templates	Layout "by hand"
Ad hoc software team support	Continuous publishing team support

# Counting Scope & Appl. Boundary

Boundaries?  
What boundaries???

The screenshot shows the website **www.superEva.it** in a Microsoft Internet Explorer browser. The page layout includes a header with a search bar and navigation links, a main content area with several columns of text and links, and a sidebar on the right. A yellow thought bubble is overlaid on the page, containing the text "Boundaries? What boundaries???". A black silhouette of a person is standing on the right side of the page, looking up at the thought bubble.

# Boundary Guidelines 1/2

- ❑ Functions should be grouped by boundary according to their logical and operational affinity.
- ❑ Consider the logical equivalent of low external coupling and high internal cohesion.
- ❑ A set of web pages pointing back to the same home page belongs to the same system, unless the previous guidelines state differently.
- ❑ A set of web pages with different URL addresses belong to separate web systems, unless the previous guidelines state differently.

# Boundary Guidelines 2/2

- ❑ Back-end functionality are/are not included (depending on specific cases)
  - ❑ webmaster functions for content creation, site maintenance, access statistics query, etc.
  - ❑ Content Management functions
- ❑ Functions exposed by the site, but provided through separate systems are not included in the boundary
  - ❑ A search engine, for example.
- ❑ A set of web pages included in a project/intervention does not necessarily belong to a unique web system boundary.
- ❑ It doesn't matter where information is physically stored (client, server X, server Y).



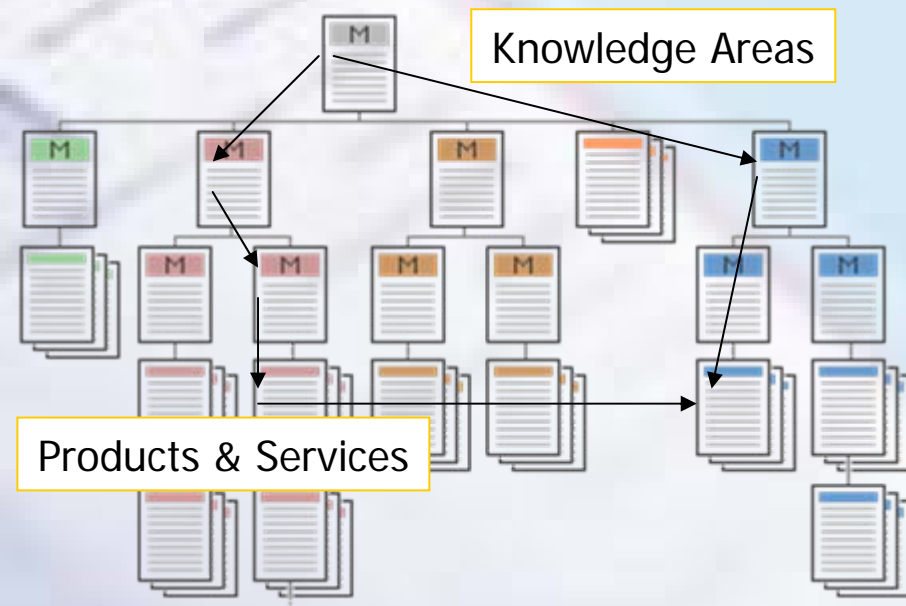
## Hints for Boundaries

- ❑ Consider functional business area from the user viewpoint
- ❑ Consider only the system-specific user requirements
  - ❑ Exclude functions provided by the browser, regardless of the web site being visited
- ❑ Consider the system ownership(s)

# Data Functions (Content Driven)

## Browsable portion

- ❑ Not straightforward
  - ❑ User's autonomy in choosing browsing paths
  - ❑ Information is de-structured (related by hyperlinks)





# The Counter's Guide

## Information Semantics



+ Homogeneity

+ Autonomous Requirements

## □ Texts

- Information which has a unique instance and is no further decomposable (even if split in  $N > 1$  pages)

## □ Resources

- Information which show a user identifiable structure and typically have multiple instances

# Guidelines

- ❑ Count 1 logical file for all the textual data (no structure and no multiple instances)
  - ❑ DET: page URL, page content, hyperlinks
- ❑ Count a logical file per each resource autonomously required and browsable.
- ❑ LF's are classified as EIF's, unless the **end** user is been provided with functions **within the web system** to maintain those LF's.

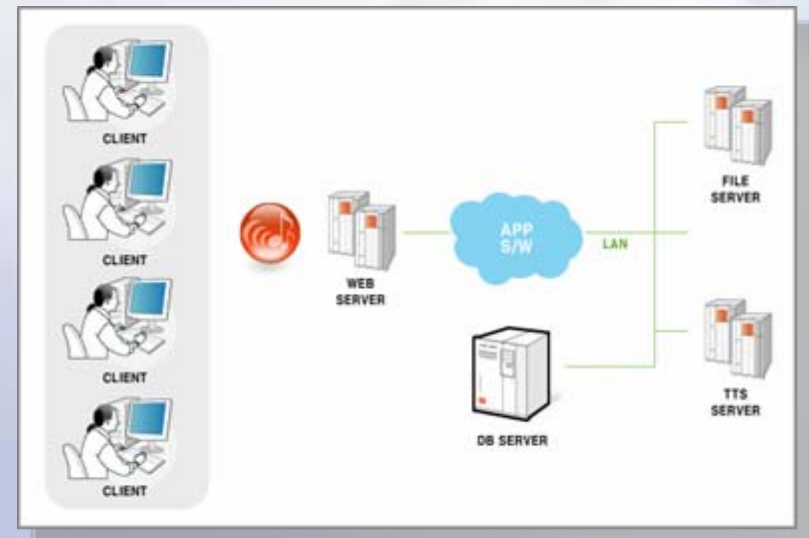
# Examples

- A Public Administration web site provides the citizens with forms, laws, news, and one or more pages of text about “who we are”, “how to reach us”, “historical information”.
  - Resources: EIF Forms, EIF Laws, EIF News
    - Several DET's, to be identified
  - Texts: 1 LF “About us”
- Carefully review texts that provide **non-static** data through lists and user readable tables
  - Resources to be identified

# Data Functions (Content Driven)

## Operation/transaction portion

- ❑ IFPUG rules work!
- ❑ A user identifiable data group is a LF regardless of where it resides.
- ❑ A LF is counted only once, regardless of duplication.
  - ❑ Local copies = remote data (user transparent)

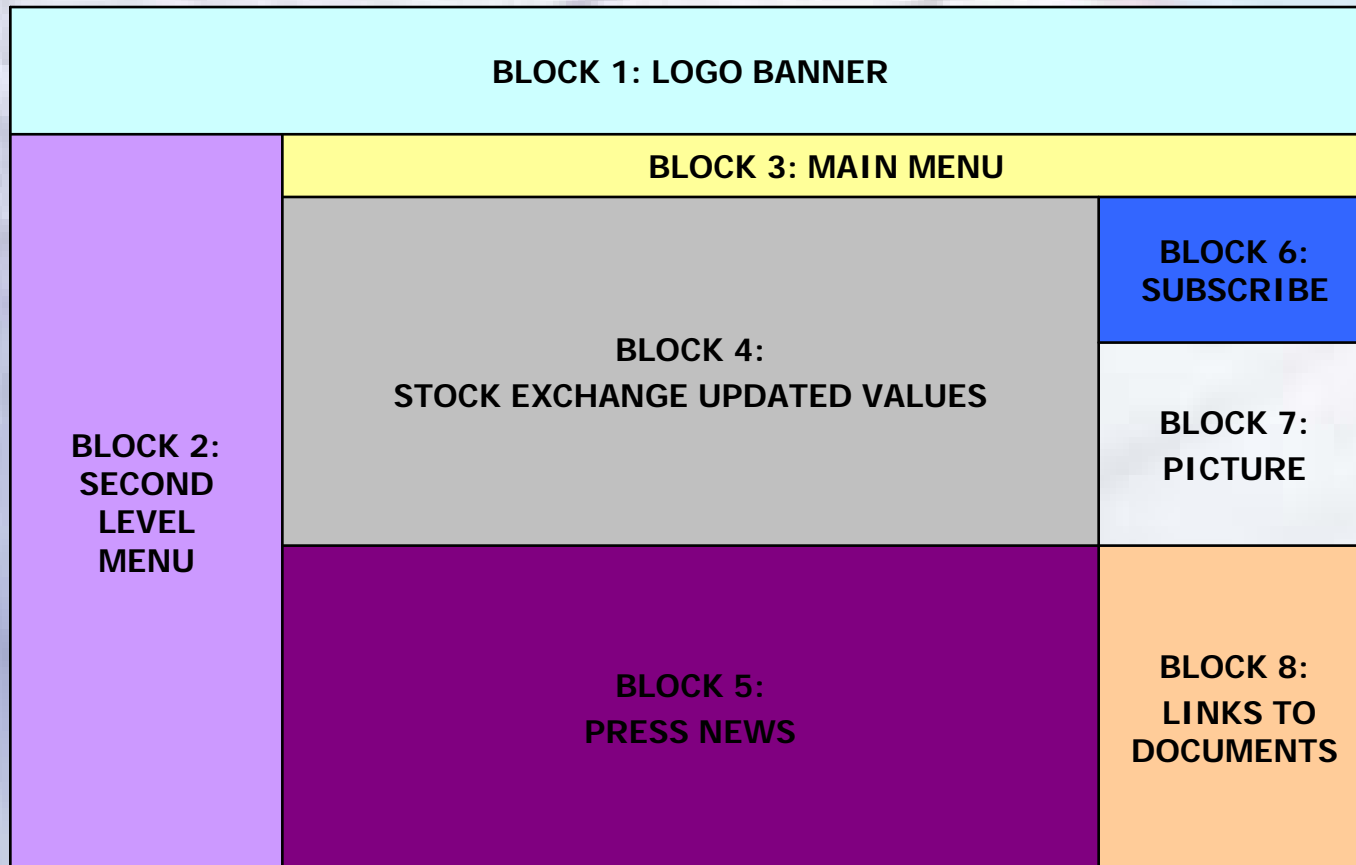


# Transactional Functions (Content Driven)


## Browsable portion

- ❑ Web pages are designed and implemented by means of **templates**, made of **content blocks**
- ❑ Each block carries a specific set contents
  - ❑ Information (text and lists, audio/video, etc.)
  - ❑ Decoration (graphics, white space, etc.)
- ❑ All the page blocks are loaded together to offer multiple choices and for space optimization
  - ❑ Concurrent blocks typically satisfy separate and potentially autonomous user needs
  - ❑ A deeper page(s) sequence may serve the same user need

# Template Blocks & Transactional Functions



# Template Blocks Example

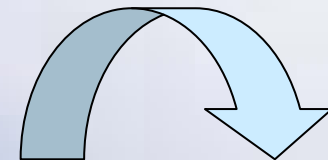
		<b>BLOCK 1</b>	
<b>Debito Pubblico</b>		<a href="#">ENGLISH VERSION</a>	<a href="#">E-MAIL</a>
<b>BLOCK 2</b>		<b>BLOCK 3</b>	
<ul style="list-style-type: none"> <li>Enzioni Titoli di Stato</li> <li>Programmi Emissione sui Mercati Internazionali</li> <li>Operazioni Straordinarie</li> <li>Risultati Aste</li> <li>Dati Statistici</li> <li>Bollettino Trimestrale</li> <li>Titoli di Stato</li> <li>Area Normativa</li> <li>Specialisti in Titoli di Stato</li> <li>Fondo Ammortamento</li> <li>Presentazioni, Studi, Relazioni</li> <li>Enti Locali e Territoriali</li> </ul>		<b>BLOCK 4</b>	
		<b>BLOCK 5</b>	
		<b>BLOCK 6</b>	
		<b>BLOCK 7</b>	
		<b>BLOCK 8</b>	

# Not Every Layout Design Block...

The screenshot shows a website layout for the Ragioneria Generale dello Stato. The layout is divided into several functional blocks:

- BLOCK 1:** Logo and header information (RAGIONERIA GENERALE DELLO STATO, Ministero dell'Economia e delle Finanze).
- BLOCK 2:** Search bar (RICERCA) with a search button and a link to 'ricerca avanzata'.
- BLOCK 3:** Navigation menu (CHI SIAMO, ORGANIGRAMMA, FAQ, PRESSROOM, EVENTI, MAPPA, GUIDA AL SITO, LINK).
- BLOCK 4:** Main navigation bar (ULTIMI DOCUMENTI, CIRCOLARI, DOCUMENTI DI FINANZA PUBBLICA).
- BLOCK 5:** Filter for 'CIRCOLARI' (Circolari > 2005).
- BLOCK 6:** Search filters (RICERCA CIRCOLARI) including 'anno' (TUTTI), 'circolare n.', and 'parola chiave' (TUTTE).
- BLOCK 7:** Year selection menu (ANNO 2005) with a list of years from 2005 to 1991.
- BLOCK 8:** Filter for 'DATA DI COMPETENZA' (11/02/2005, 08/02/2005, 31/01/2005, 04/01/2005).
- BLOCK 9:** List of circulars (ELENCO DELLE CIRCOLARI) with columns for title, date, and format/size.

DATA DI COMPETENZA	ELENCO DELLE CIRCOLARI	FORMATO E DIMENSIONE
11/02/2005	<b>Circolare n. 5</b> Legge finanziaria 2005 - Riflessi sulla gestione del bilancio dello Stato di talune disposizioni volte ad assicurare il conseguimento degli obiettivi di finanza pubblica.	PDF (498k)
08/02/2005	<b>Circolare n. 4</b> concernente il "patto di stabilità interno" per gli anni 2005-2007 per le Province, i Comuni con più di 3.000 abitanti, le Comunità montane con più di 10.000 abitanti, le Unioni di comuni e le Comunità isolate con più di 10.000 abitanti.	PDF (1350k)
31/01/2005	<b>Circolare n. 2</b> Comunicazione previsione spese di personale degli enti per l'anno 2005. PARAMETRI-QUALIFICHE-ISTR. SPECIFICHE DI COMPARTO	PDF (804k) DOC (35k)
04/01/2005	<b>Circolare n. 1</b> Accertamento residui passivi alla chiusura dell'esercizio 2004.	PDF (511k)





# ...IS Necessarily User Significant

The screenshot displays the website interface for the Italian Ministry of Economy and Finance (MEF). The page is divided into several functional blocks:

- BLOCK 1:** Logo of the Ragioneria Generale dello Stato (RGS) and the text "RAGIONERIA GENERALE DELLO STATO Ministero dell'Economia e delle Finanze".
- BLOCK 2:** "MEF Home Ministero".
- BLOCK 3:** Search bar labeled "RICERCA" with a "ricerca avanzata" link.
- BLOCK 4:** Navigation menu including "CHI SIAMO", "ORGANIGRAMMA", "FAQ", "PRESSROOM", "EVENTI", "MAPPA", "GUIDA AL SITO", and "LINK".
- BLOCK 5:** A blue bar with navigation links: "ULTIMI DOCUMENTI", "CIRCOLARI", and "DOCUMENTI DI FINANZA PUBBLICA".
- BLOCK 6:** "CIRCOLARI" section header with a filter for "Circolari > 2005".
- BLOCK 7:** Search filters for "RICERCA CIRCOLARI" including "anno" (set to "TUTTI"), "circolare n.", and "parola chiave" (set to "TUTTE").

Below the search filters, there is an "ANNO 2005" section with a year selection menu. The main content area displays a table of circulars with columns for "DATA DI COMPETENZA", "ELENCO DELLE CIRCOLARI", and "FORMATO E DIMENSIONE".

DATA DI COMPETENZA	ELENCO DELLE CIRCOLARI	FORMATO E DIMENSIONE
11/02/2005	<b>Circolare n. 5</b> Legge finanziaria 2005 - Riflessi sulla gestione del bilancio dello Stato di talune disposizioni volte ad assicurare il conseguimento degli obiettivi di finanza pubblica.	PDF (498k)
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04/01/2005	<b>Circolare n. 1</b> Accertamento residui passivi alla chiusura dell'esercizio 2004.	PDF (511k)

# Guidelines

- ❑ Block analysis provides candidate transactions
  - ❑ First-time-identified blocks could require aggregations or decomposition, in search of unique requirements fulfillment
- ❑ Not every (linked) block corresponds to a transaction
  - ❑ Exit towards other sites
  - ❑ Menu navigation without data retrieval
  - ❑ Scrolling through linked page(s) sequences
- ❑ Input/output side of EQ's/EO's are in the same block, or corresponding blocks of start/end pages

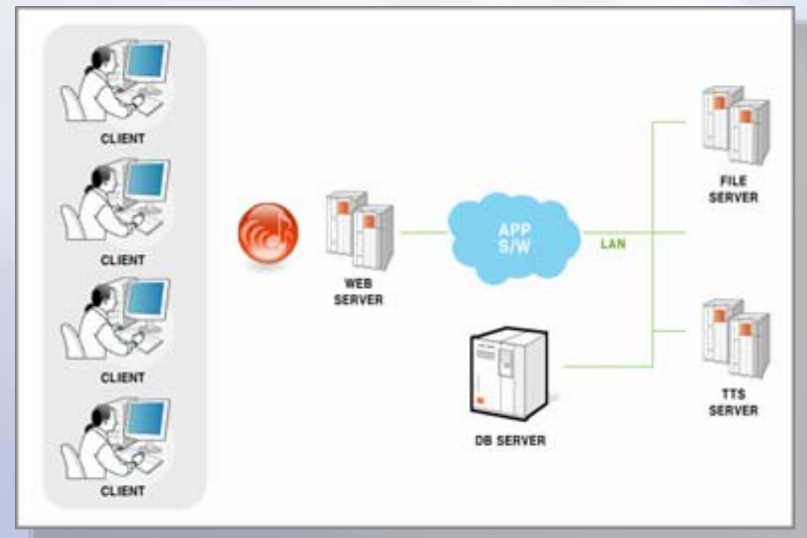
# Other Guidelines

- ❑ Favorites/Bookmarks, History, Settings, Recent Pages List are not counted (standard browser functions)
- ❑ Print = showed page: not counted
  - ❑ Print friendly versions eventually counted (data is different?)
- ❑ Email links counted only if some data cross the boundary (address, subject, etc.)
- ❑ “Fitted in” external functions are not counted
  - ❑ e.g. search capability provided through external engines
- ❑ File downloads are not additional transactions
  - ❑ This function is by default provided by the browser, given the URL (the link is a DET of the resource, when showed)

# Transactional Functions (Content Driven)

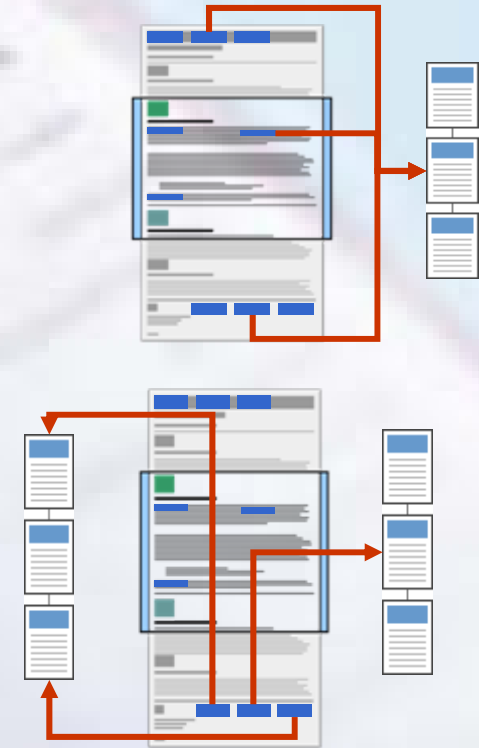
## Operation/transaction portion

- ❑ IFPUG rules work!
- ❑ A process activated from the client ends when it reaches its main purpose, regardless of steps or remote required software modules.
- ❑ An EP is counted only once, regardless of duplication.
  - ❑ Offline = online transactions (if same data and processing logic)



# Hints for Transactions

- ❑ **Multiple paths/ways** to access the same data are not counted as multiple elementary processes
- ❑ Exclude standard browser functions
- ❑ Multimedia components & graphics should not affect the count, unless they provide specific information to the user
- ❑ Pages and processes are typically **not 1:1**
- ❑ If a transaction exists with update capability, don't forget (to check) the implicit inquiry
- ❑ Q. Is a popup window autonomous from other blocks?
- ❑ Q. What about cookies? Other "technicalities"?



# GSC's Typical Ranges

1. Data Communications: 4 ÷ 5
2. Distr. Data Processing: 3 ÷ 5
3. Performance: 0 ÷ 5
4. Heavily Used Config.: 1 ÷ 3
5. Transaction Rate: 0 ÷ 4
6. Online Data Entry: 5
7. End-User Efficiency: 4 ÷ 5
8. Online Update: 0 ÷ 5
9. Complex Processing: 0 ÷ 5
10. Reusability: 1 ÷ 5
11. Installation Ease: 0 ÷ 5
12. Operational Ease: 1 ÷ 4
13. Multiple Sites: 3 ÷ 5
14. Facilitate Change: 0 ÷ 5

VAF varies from 0.9 (browsing portion only) to 1.3 (complex interactive systems)

Or...

VAF = 1 always (Unadjusted FP)

# IFPUG

INTERNATIONAL FUNCTION POINT USERS GROUP

191 Clarksville Road  
Princeton Junction, NJ 08550  
P 609.799.4900  
F 609.799.7032



## Case Study

A WORLD OF INFORMATION

- [WHAT'S NEW](#)
- [ABOUT IFPUG](#)
- [CHAPTERS](#)
- [EDUCATIONAL SERVICES & WORKSHOPS](#)
- [CONFERENCES](#)
- [FUNCTIONAL SIZING SUMMIT](#)
- [CERTIFICATION](#)
- [MEMBERSHIP INFORMATION](#)
- [PUBLICATIONS & PRODUCTS](#)
- [ADVERTISERS / VENDORS / RELATED SITES](#)
- [PRESS RELEASES](#)
- [OTHER EVENTS](#)

MEMBERS ONLY

<<Make a Selection>>

BULLETIN BOARD

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International Function Point Users Group  
Function Points - 25 years and counting

Site Map | February 13, 2006

## Now, how big is... the IFPUG website???



# First Conclusions? Further Issues...

- ❑ We can measure a web site
- ❑ But...
  - ❑ We must clearly establish the abstraction level
  - ❑ If the purpose of the count is to provide effort estimation and/or validation, the FP measure at the “content driven” abstraction level is rarely significant!



# What about the Purpose of the Count?

- ❑ When blank structuring blocks are required...
  - ❑ Different user type (content provider or “publisher”)
  - ❑ Template paradigm is typically used (Content Management tool)
  - ❑ Same concepts: templates & page/structure blocks
  - ❑ Different usage of templates or blocks (\*)
    - ❑ The publisher may use the same template or block within a template to provide different contents (counted separately in the content driven analysis, counted only once from the content provider perspective)
  - ❑ Possibly same **contents**, but provided **after** the developer has designed the web site **structure**
- ❑ A different abstraction level
  - ❑ Structure driven analysis

(\*) A precedent: middleware counting hints

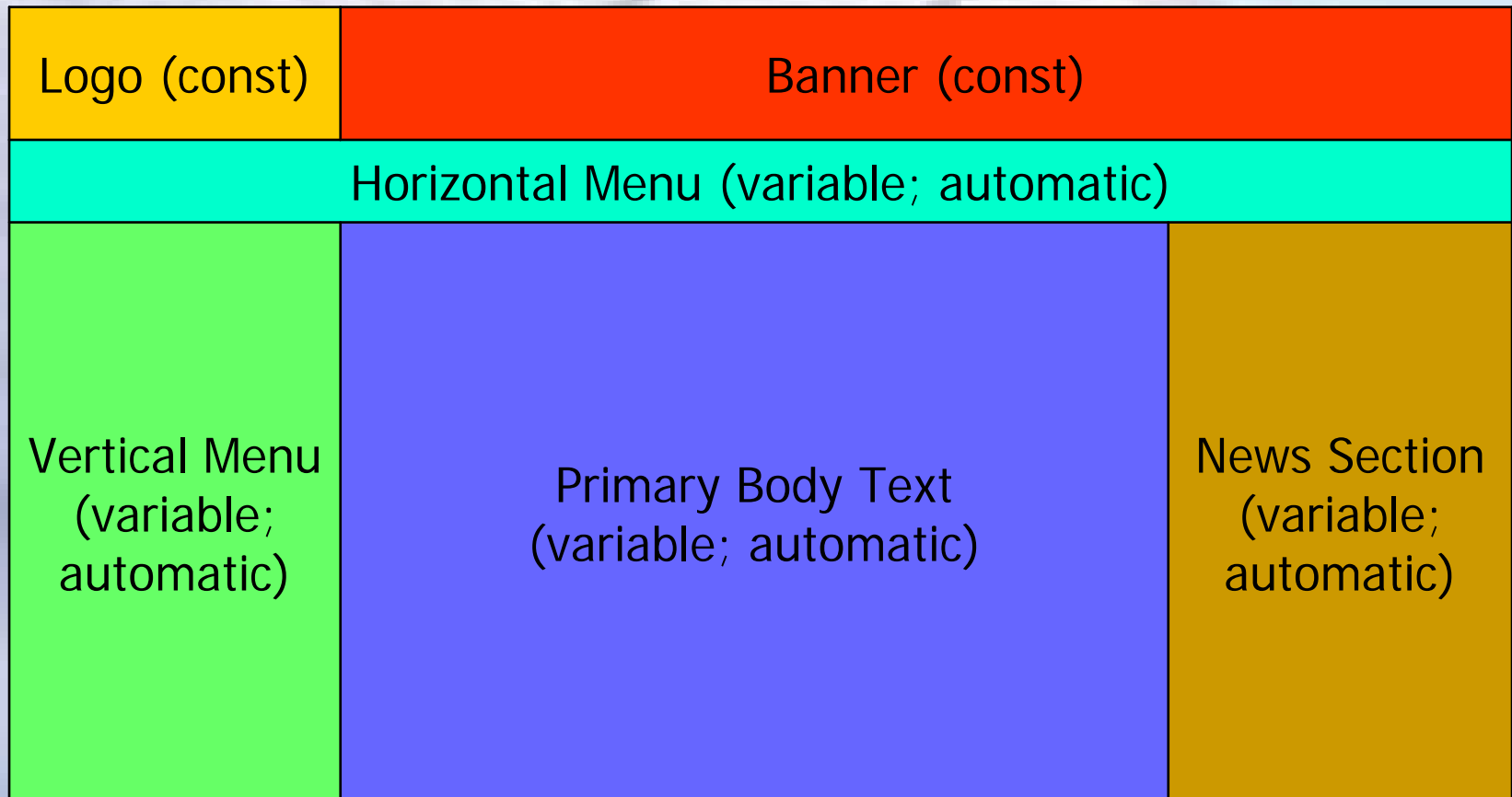
## Data Functions (Structure Driven)

- ❑ Identify each content provider recognizable block, in all the templates, designed to carry non static data
- ❑ Review blocks, aggregating those blocks that are not independent/autonomous
- ❑ Count a LF per unique, identified block
- ❑ Classify LF's as ILF if modifiable by the content provider, as EIF otherwise

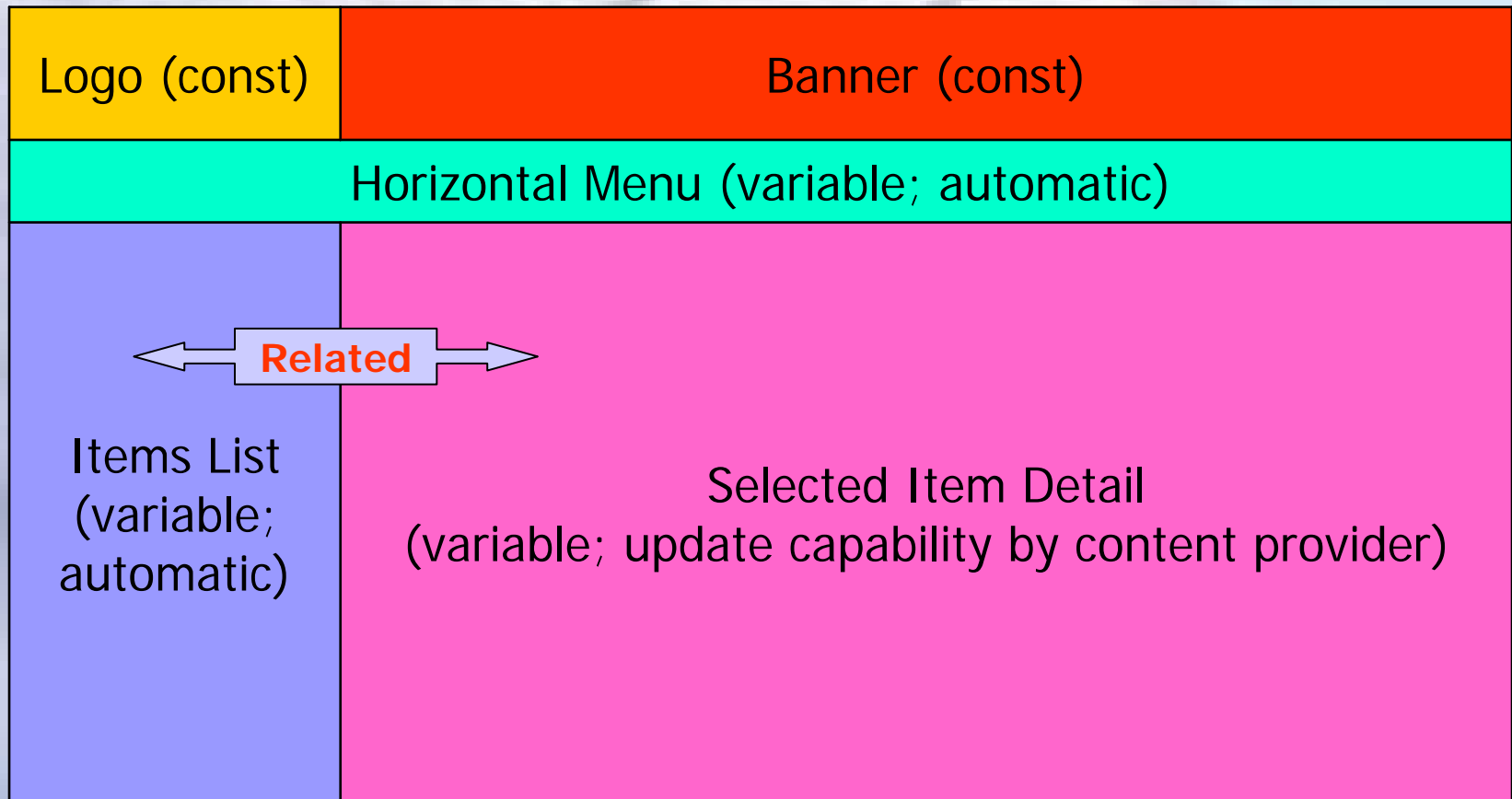
## Transactional Functions (Structure Driven)

- ❑ Identify each content provider recognizable block, in all the templates, designed to carry non static data (same as before)
- ❑ Review blocks aggregating those blocks that are not independent/autonomous
- ❑ Count an EP per unique, identified block
- ❑ Classify EP's as EI's, EO's, EQ's, based on their primary intent and processing logic

# Example



# Example



# Proposed Solution

## □ Logical Files

- Horizontal Menu (EIF)
- Vertical Menu (EIF)
- Primary Body Text (EIF)
- News (EIF)
- Items (incl. description) (ILF)

## □ Elementary Processes

- Horizontal Menu (EQ)
- Vertical Menu (EQ)
- Primary Body Text (EQ)
- News (EQ)
- Items List (EQ)
- Item Detail View (EQ)
- Item Detail Modify (EI)

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Function Points - 25 years and counting

Site Map | February 13, 2006

How big did we say??? Let's try a different "view"...

# Thank you!

- Questions?
  
- Further information / contact:  
[luca.santillo@gmail.com](mailto:luca.santillo@gmail.com)
  
- When referring to this presentation, please quote:  
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