

Misc Topics

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Objectives

- To understand design principles for web sites
- Command and Natural Languages
- New Trends in Software Engineering
- Secure software design

Design principles for web sites

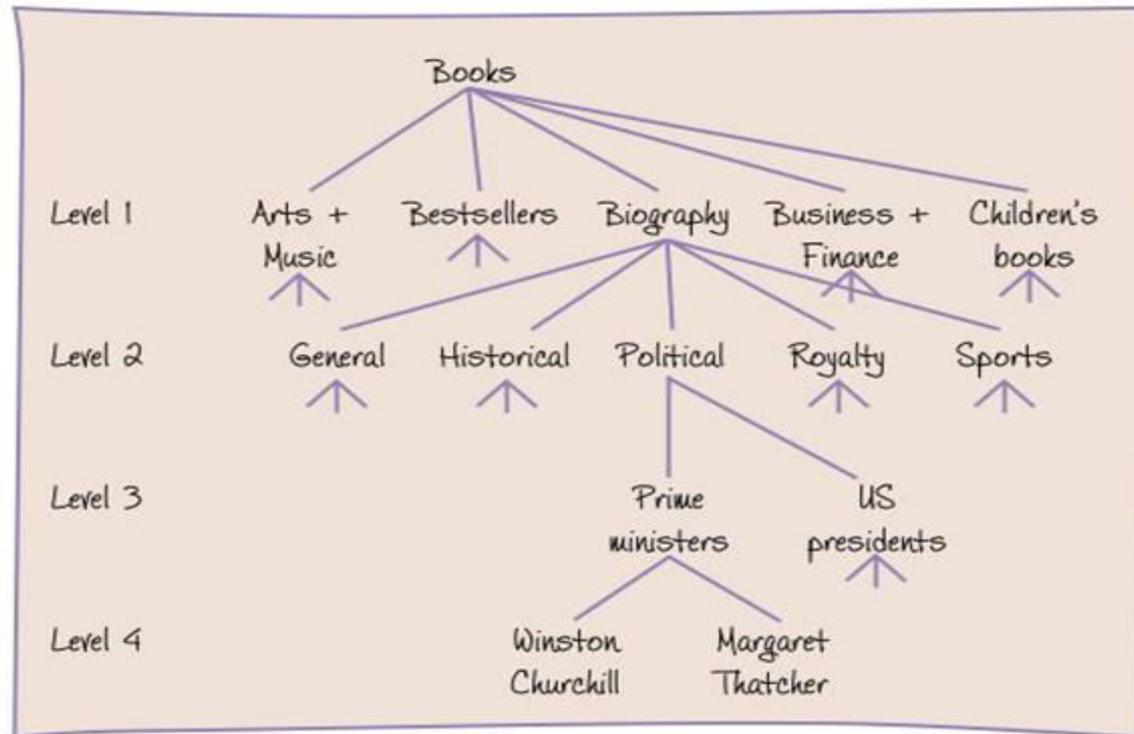
- High-quality content
- Often updated
- Minimal download time
- Ease of use
- Relevant to user's needs

Designing the web site structure

- The Web is a **hypertext** system made up of a huge number of pages that are linked together in a very complex way.
- The most common site structure is some form of hierarchy, with the home page as the root node.
- When you are designing the structure of a site, it can help to look first at the natural organization of the information.

Example: Organizing the book information

- This classification can be useful for structuring a web site to sell books.
 - A web page for each node in this classification.



Too many elements in one icon

- The simpler and more laconic the icon, the better. It is preferable to keep the number of objects in a single icon to a minimum.



Navigation aids

- Site map
- Breadcrumb trail
- Scrolling

Site map

- Showing the site hierarchy condensed onto a single page.

The screenshot displays the Los Angeles Times website with a 'Site Map' section. The site map is organized into several categories:

- NEWS**
 - The World
 - The Nation
 - California
 - Politics
 - Editorials, Op-Ed
 - Home
 - Food
 - Health
 - Highway 1
 - Outdoors
 - Real Estate
 - Sunday Magazine
 - Sunday Opinion
 - Travel
 - Columns
 - Education
 - Obituaries
 - Religion
 - Science
 - Print Edition
- AP NEWS**
 - World
 - Nation
 - Politics
 - Business
 - Wall Street
 - Health
 - Entertainment
 - Sports
- SPORTS**
 - Print Edition
 - Live Scores
 - Columns
 - Morning Briefing
 - Page Two

Other visible elements on the page include the 'latimes.com' logo, a search bar, navigation links for 'Home' and 'Home Delivery', and various service links like 'REGISTER', 'LOGIN', 'MARKETPLACE', 'shopping center', 'SoCal', and 'calendarfive.com'.

Breadcrumb trail

- A “breadcrumb” (or “breadcrumb trail”) is a type of **secondary navigation scheme** that reveals the user’s location in a website or Web application
- Every level in the hierarchy from the top to your current position is listed from left to right.

The screenshot displays the eBags website interface. At the top, there are navigation links: [Sign In](#), [Track Your Order](#), [Your Account](#), and [Your Cart](#). Below these are category buttons: Home, Luggage, Travel Accessories, Business & Laptop Cases, **Handbags**, Summer Sale, Backpacks, Sports & Duffels, Urban Gear, Business Accessories, Wallets, Kids & Parents, and Buy Shoe. A search bar is present with the text "Search eBags for" and a search icon. To the right of the search bar are links for [Request A Catalog](#) and [Corporate & Volume Orders](#). A promotional banner states "Free Shipping on orders of \$75 or more! Through 7/5/04 See Details".

The breadcrumb trail is located below the banner and reads: [Handbags](#) > [Shop by Material](#) > **Fabrics**. A red arrow points from the "Narrow Your Selection" sidebar to the "Shop by Material" link in the breadcrumb trail.

The sidebar, titled "Narrow Your Selection", has two sections:

- Narrow by Category**
 - [Canvas](#)
 - [Coated Canvas](#)
 - [Corduroy](#)
 - [Cotton Quilted Print](#)
 - [Crochet](#)
 - [Linen](#)
 - [Logo Fabrics](#)
 - [Microfiber](#)
 - [Nylon](#)
 - [Oriental Brocade](#)
 - [Satin](#)
 - [Tapestry](#)
- Narrow by Brand**
 - [AmeriBag](#)
 - [Crazy Quilts](#)
 - [Crumpler](#)
 - [Etienne Aigner](#)
 - [Kipling](#)
 - [Kulanui of Hawaii](#)
 - [La Regale](#)

The main content area shows "We have 245 products listed" and a "Sort By" dropdown menu set to "Bestselling". It also indicates "Products per page: 6 | 12 | 24 | 50". Two products are listed:

- AmeriBag - Healthy Back Bag @ Distressed Nylon Medium**
 - Usually ships within: 2 business days [?]
 - Customer Rating: 8.6
 - Available Colors:
 - Our price: \$60.00**
 - [See details](#) | [Add to cart](#)
 - [Compare This Item](#)
 - [Compare Selected Items](#)
- Kipling - "Candy" Top Zip Front Flap Pocket Handbag**
 - Usually ships within: 2 business days [?]
 - Customer Rating: 9.1
 - Available Colors:
 - Our price: \$48.00**
 - [See details](#) | [Add to cart](#)
 - [Compare This Item](#)
 - [Compare Selected Items](#)

Scrolling

- The most important content should be visible without scrolling.
 - Positioning content above the fold.
- Make page-length decisions that support the primary use of the Web page.
- Use shorter pages for homepages and navigation pages, and pages that need to be quickly browsed and/or read online.
- Use longer pages to ...
 - Facilitate uninterrupted reading, especially on content pages
 - Simplify page maintenance (fewer Web page files to maintain)
 - Make pages more convenient to download and print

Horizontal scrolling

- Horizontal scrolling, across the page, interrupts the flow of reading on every line.
- Try to ensure that either the text wraps to the user's screen size or the line length is less than the anticipated screen size.

Style sheets

- Use style sheets to achieve consistent visual appearance of a web site.
- Style sheets also allow you to change the appearance of the whole site with relative ease.
 - For example, if you decide that the typeface used for titles should be changed, you simply alter the style sheet rather than changing every title by hand.

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The Basic Goals of Language Design

- Precision (accuracy)
- Ease in writing and reading
- Speed in learning
- Simplicity to reduce errors
- Ease of retention over time

Functionality to Support User's Tasks

- A common design error
 - Providing excessive functionality
 - It slows learning
 - Increases the chances of error
 - Requires longer manuals, and more help screens
- On the other hand, insufficient functionality may leave the user frustrated
 - Because desired functionality may not be supported
- Careful task analysis might result in a table of user communities and tasks, with each entry indicating expected frequency
 - Make high-volume tasks easy to carry out
 - Evaluate *destructive actions* to ensure reversibility

Functionality to Support User's Tasks (cont.)

Designers should

- determine functionality of the system by studying users' task domain
- create a list of task actions and objects
- abstract this list into a set of interface actions and objects
- create a table of user communities and tasks, with expected use frequency
- determine hierarchy of importance of user communities (i.e. prime users)
- evaluate destructive actions to ensure reversibility
- identify error conditions and prepare error messages
- allow shortcuts for expert users

Command-Organization Strategies

Several strategies for command organizations have emerged.

- Each command is chosen to carry out a single task. The number of commands match the number of tasks.
- For small number of tasks, this can produce a system easy to learn and use.
- When there is a large number of commands there is danger of confusion.

Naming and Abbreviations

- Names are important for learning, problem solving, and retention over time.
- With few names a command set is relatively easy to master; but when it contains hundred of names, the choice of meaningful, organised sets of names becomes more important.
- Specific terms may be more descriptive than general ones and may be more memorable
- There is often a lack of consistency or obvious strategy for construction of command abbreviations.

Potential Abbreviation Strategies

- Abbreviation for commands should be brief and in easy code.
- Novices prefer typing a full name such as BROWSE or SELECT rather than the traditional four-letter abbreviations BRWS or SLCT.
- Efforts have been made to find optimal abbreviation strategies.
 - Simple truncation: The first, second, third, etc. letters of each command.
 - First and last letter: Since the first and last letters are highly visible, use them for example use ST for SORT
 - First letter of each word in a phrase
 - Standard abbreviations from other contexts: Use familiar abbreviations such as QTY for QUANTITY.
 - Phonics: Focus attention on the sound for example use XQT for execute

Class Tasks

- Did you use any command line in your project?
- Discuss the command line or shortcuts which you have used in your project

New Trends in Software Engineering

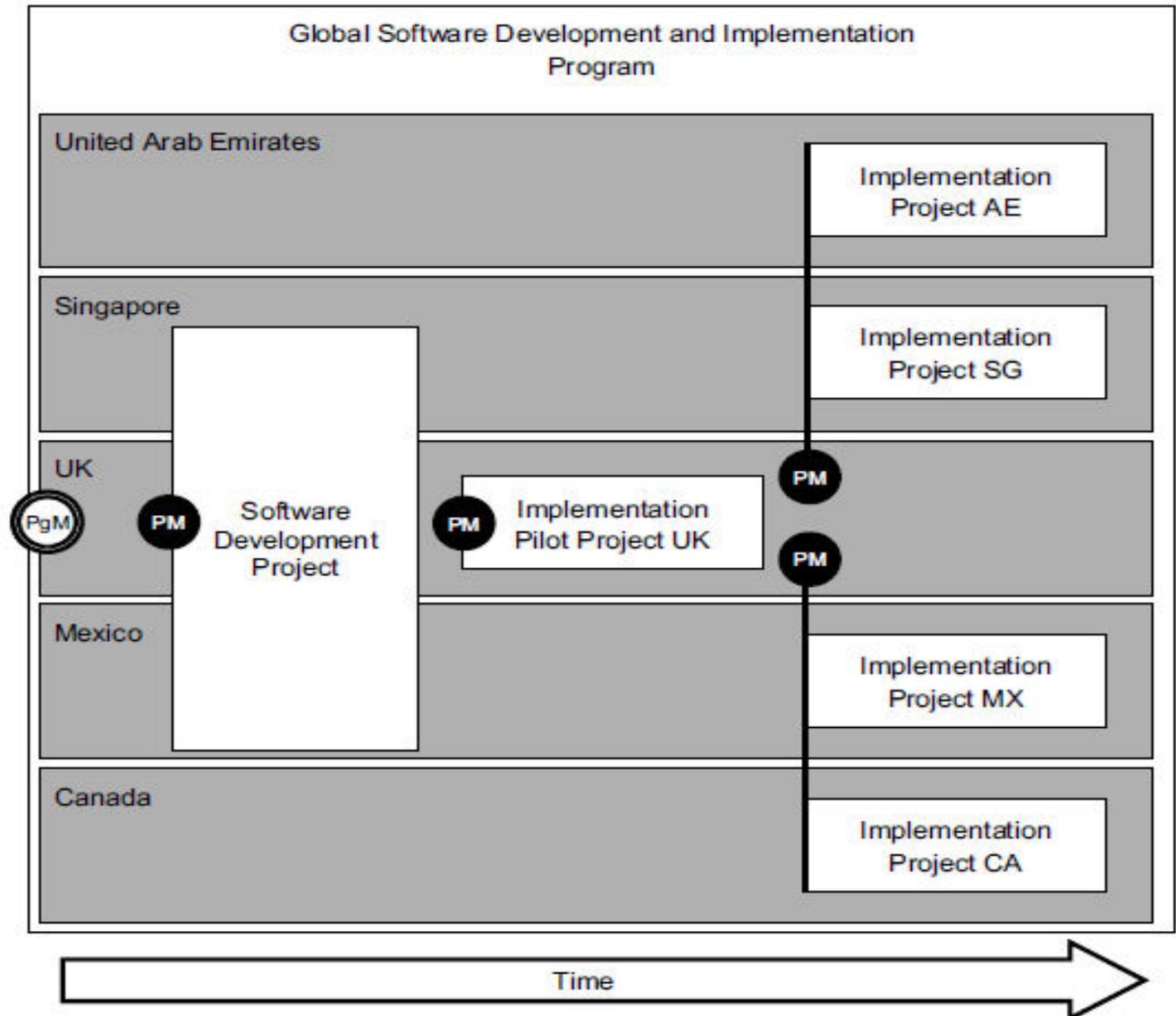
- Global Software Development
- Software Process Improvement
- Enterprise resource planning (ERP)
- Electronic commerce (EC or E-commerce)

What is Global Software Development?

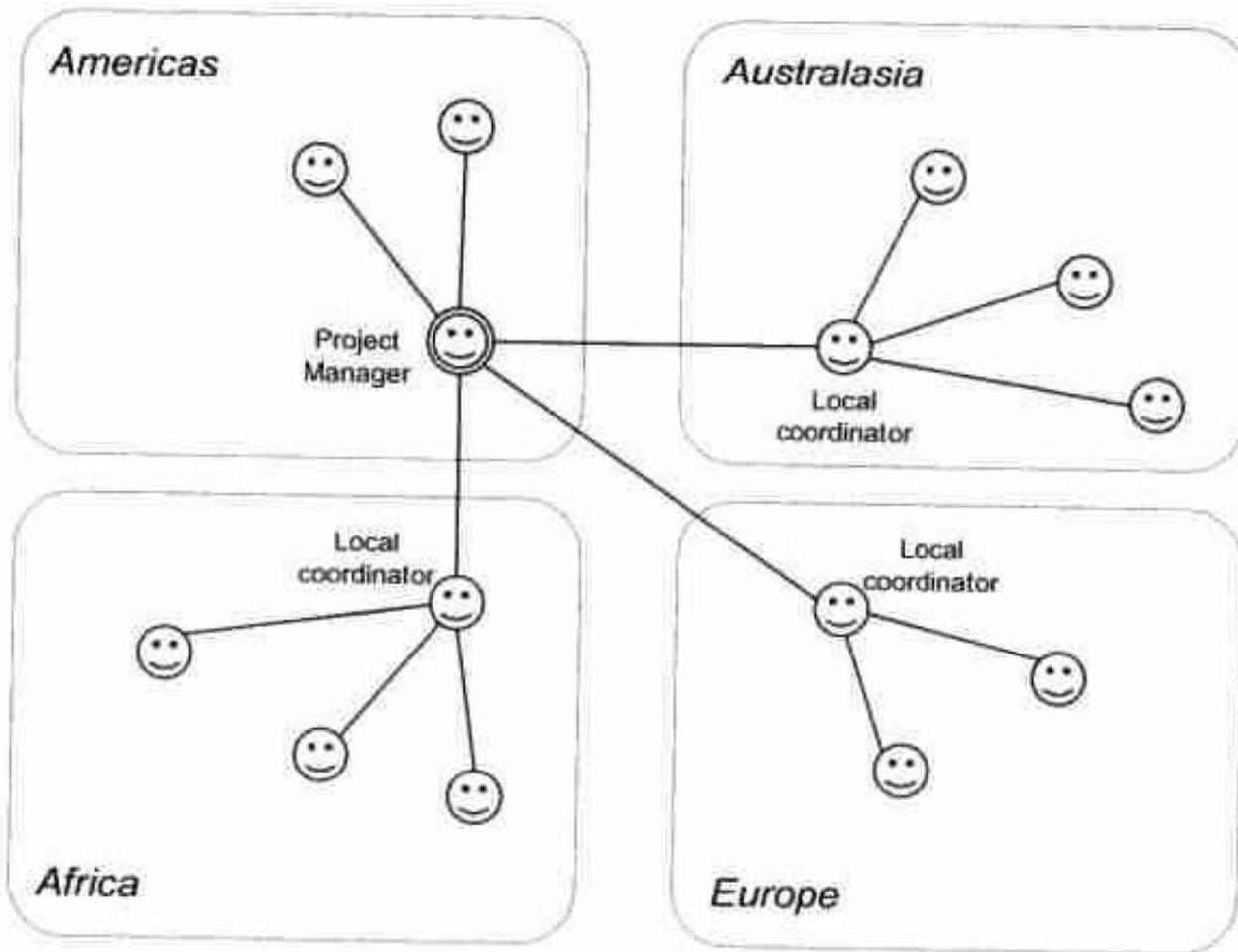
- *Global Software Development (GSD)* is carried out by teams of knowledge workers located in various parts of the globe developing commercially viable software for a company
- Distributed Software Development and Global Software Development are similar except that GSD teams are always global.

What is Global Software Development?

Local program of
global projects



What is Global Software Development?



What is Global Software Development?

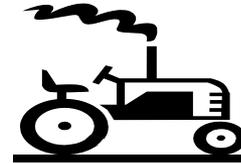
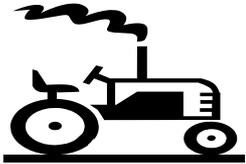
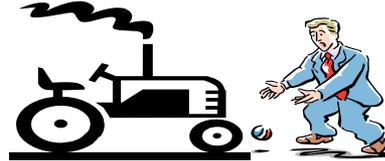
- To develop software in global environment needs a lot of collaboration and coordination. For which many software tools are needed with up-to-date interfaces which can make the GSD process easy.

What is SPI?

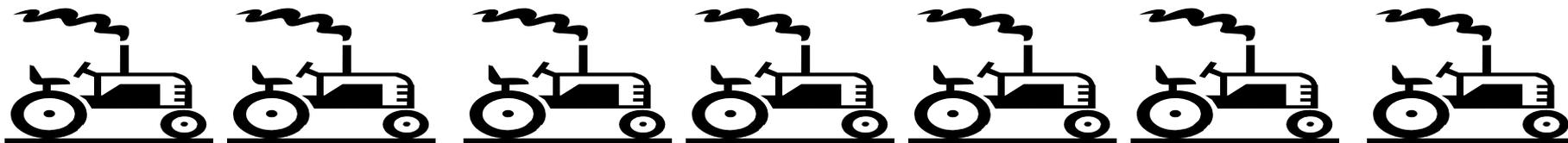
- SPI involves understanding existing processes and changing these processes to improve product quality and/or reduce costs and development time.



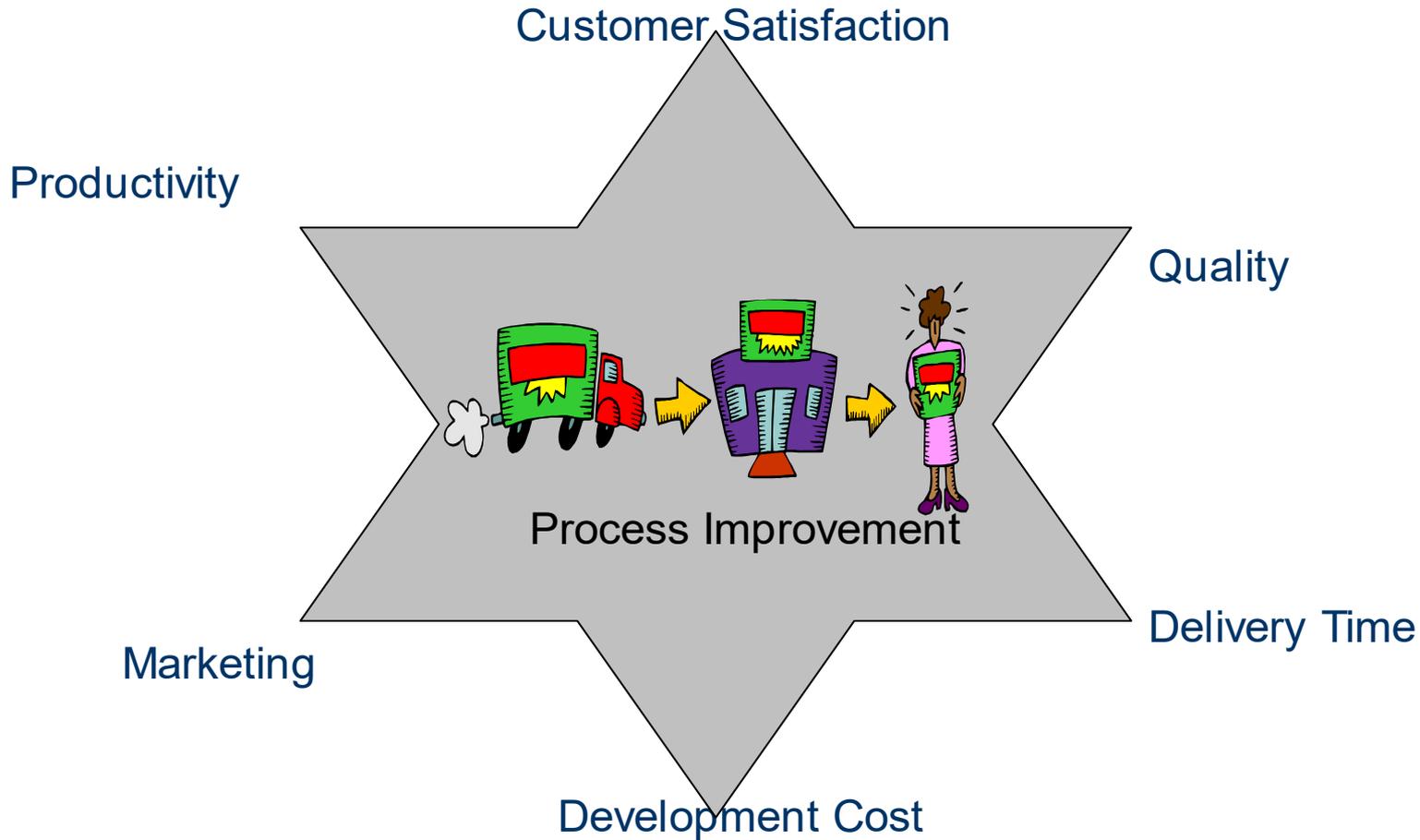
Why Software Process Improvement?



Why Software Process Improvement?



Why SPI?



Enterprise Resource Planning

An **Enterprise resource planning** (ERP) software product is a fully integrated system that spans most basic business functions required by a major corporation. An ERP product is built around a common database shared these business functions. Examples of ERP software vendors include.

- Baan
- J. D. Edwards
- Oracle
- Peoplesoft
- SAP

Electronic Commerce

Electronic commerce (e-commerce or EC) involves conducting both internal and external business over the Internet.

- Electronic commerce includes the buying and selling of goods and services, the transfer of funds, and the simplification of day-to-day business processes – all through digital communications.
- Three basic types of electronic commerce applications include:
 - Marketing
 - Business-to-consumer (B2C)
 - Business-to-business (B2B)