Implementing an Information Architecture using OASIS DITA

A Nokia Case Study

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Contents

- Introduction to Nokia and our information architecture goals
- Why Nokia selected the Darwinian Information Typing Architecture (DITA) as a common content architecture
- How we are using DITA
- Tips on applying DITA

Nokia in Facts and Figures (2003)

- Net sales totaling EUR 29.5 billion (USD 36.2 billion)
- R&D centers in 11 countries and 16 manufacturing facilities in 9 countries
- Approximately 51,000 employees
- Mobile Phones: 40 new products launched during 2003
  - Color screens in 31 models
  - Camera in 14 models
  - Multimedia messaging in 24 models
  - 11 models for the CDMA market
- Local and global products
- User documentation delivered with each sales package as well as via www.nokia.com
- User documentation translated into approximately 50 languages

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Product Information

EXTERNAL INFORMATION

Sales Package
User Guide
(paper, PDF, HTML)

Quick Guide
(paper, PDF, HTML)

Interactive Tutorial
(simulation)

Easy Guide
(HTML)

Support
information for
dealers (paper,
simulation)

Online Help

Service Information
(paper, PDF, HTML, video)

Marketing material
(paper, multimedia)

INTERNAL INFORMATION

Software & Hardware
Specifications

Test Specifications

User Interface
Specifications

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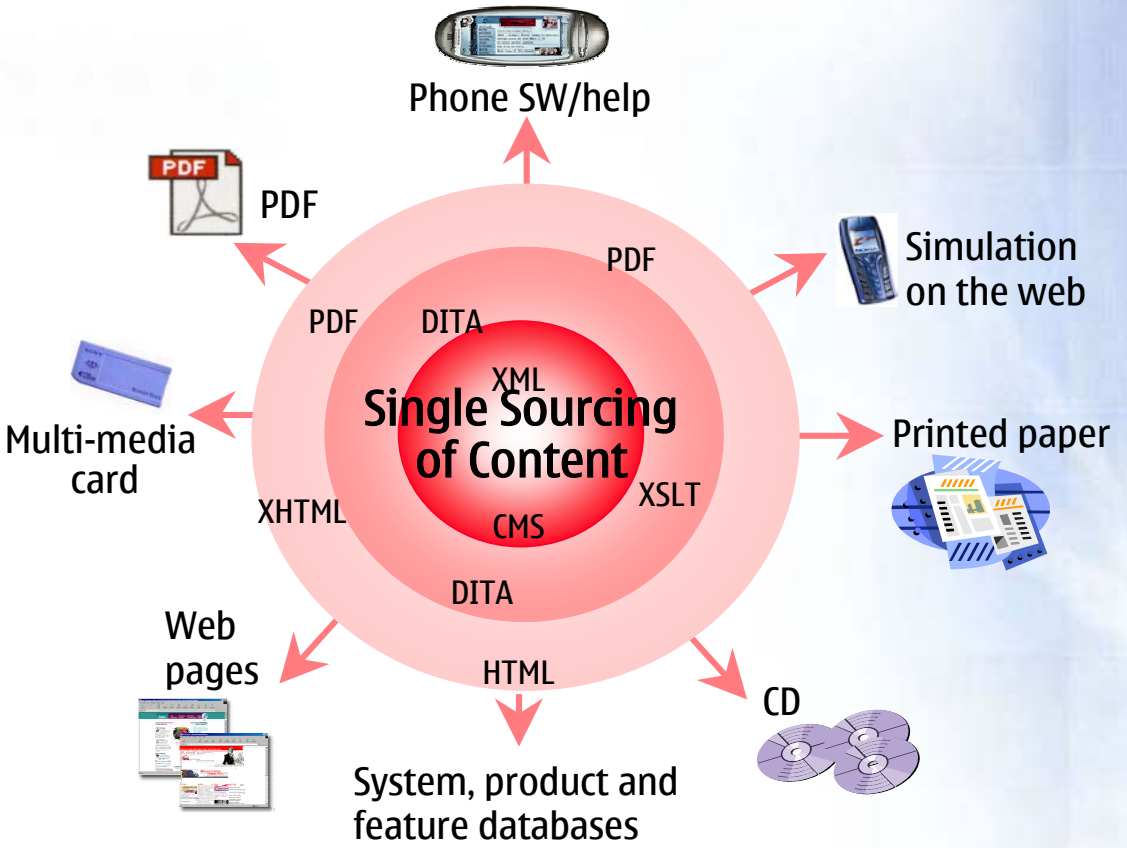
Information architecture goals

- ✓Reduce content creation costs
- ✓Reduce localisation costs
- ✓Move quickly to XML
- ✓Reduce content exchange costs
- ✓Minimise maintenance costs
- ✓Respond quickly to new needs
- ✓Reduce creation timescales



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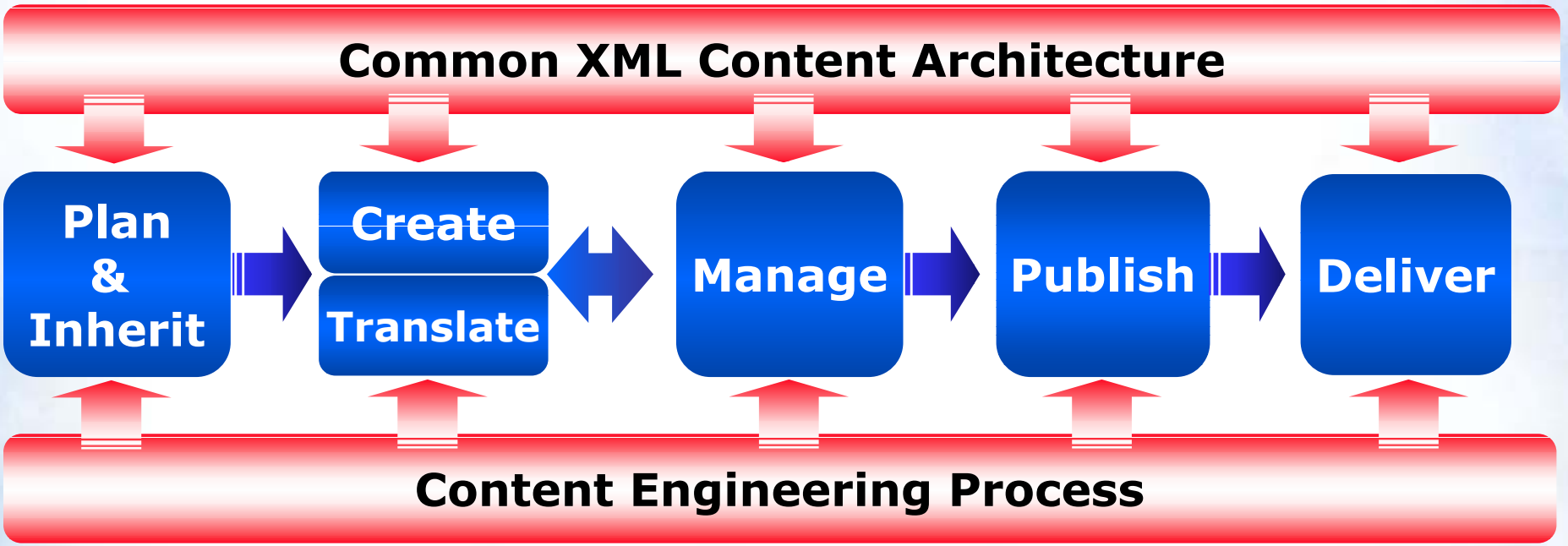
Nokia XML content creation solution

- Common XML content architecture (OASIS DITA)
- Reuse logic based on software feature logic (topic mapping)
- Common metadata across user domains (Nokia metadata framework)
- Common content engineering process across user groups
- Consistent set of tools and enabling technologies across user groups (common content management system and authoring tools)



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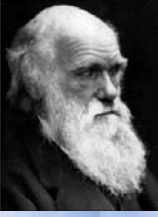
What is DITA?

- XML content architecture for authoring and producing information for different formats such as PDF documents, on-line help and portal pages
- Set of DTDs for further specialization or use “as is”
- Topic DTDs for creating modular concept, task and reference topic types
- Map DTD for assembling modular topics into information products
- Base transforms for creating XSL-FO and HTML output
- Set of architecture rules and mechanisms for creating specialized topic types from base types and reusing transformation logic
- Architecture documentation including user guide and reference guides

Why DITA?

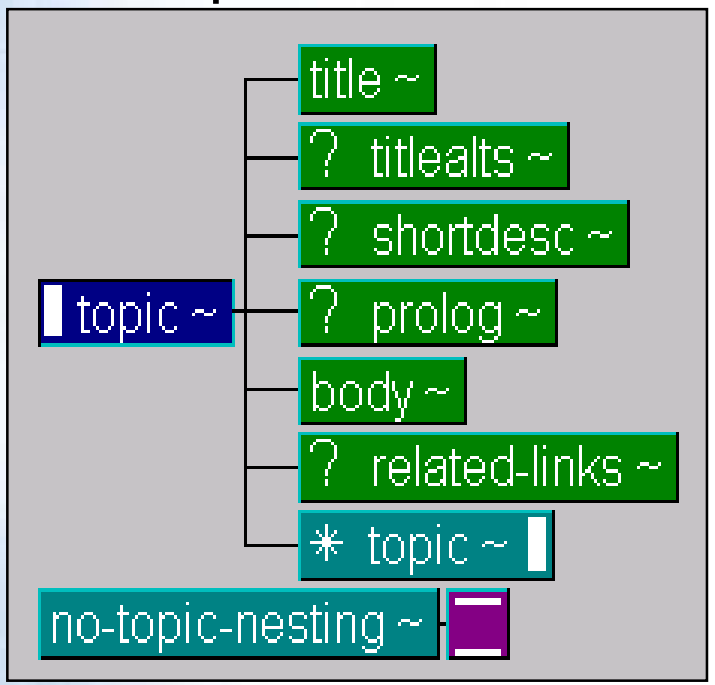
- Open standard (OASIS) and growing DITA community
- DITA architecture package includes DTDs, toolkit and base transforms
- Match with information design approach – modular, task-oriented, topic-based XML, supporting single-sourcing objectives
- Built-in mechanisms and principles support reuse of individual topics and topic collections.
- Support for defining links outside topic content and in collection (map) content, which increases reuse potential of topics
- Support for extending the architecture quickly and reusing investment in transformation logic
- Inheritance principles reduce cost of adding new user domains to common architecture
- Reduced information exchange costs
- Examples of implementations available

The Darwinian Attractions - "specialization and inheritance"

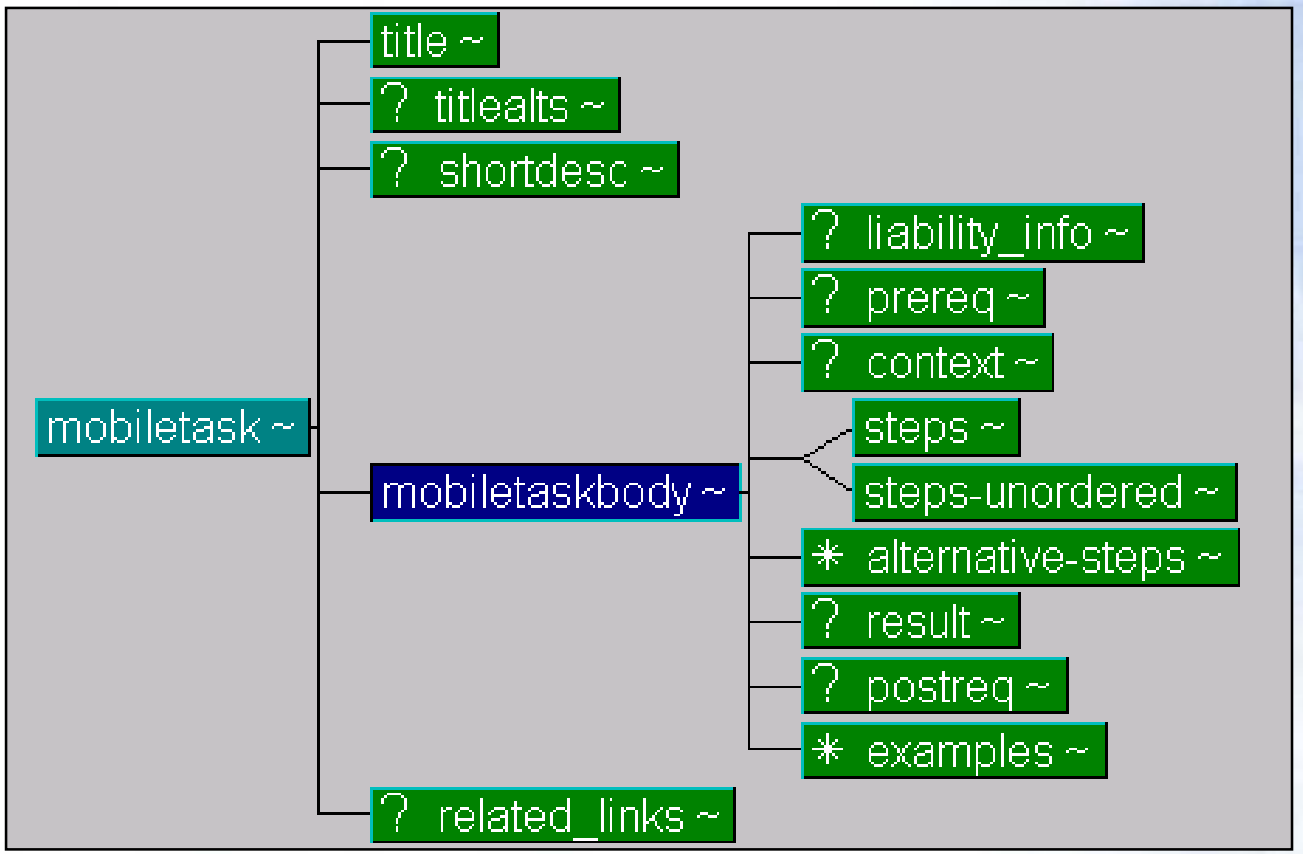


Example of Nokia specialization of DITA topic (extract from DTD viewer)

DITA topic DTD



Mobile task DTD



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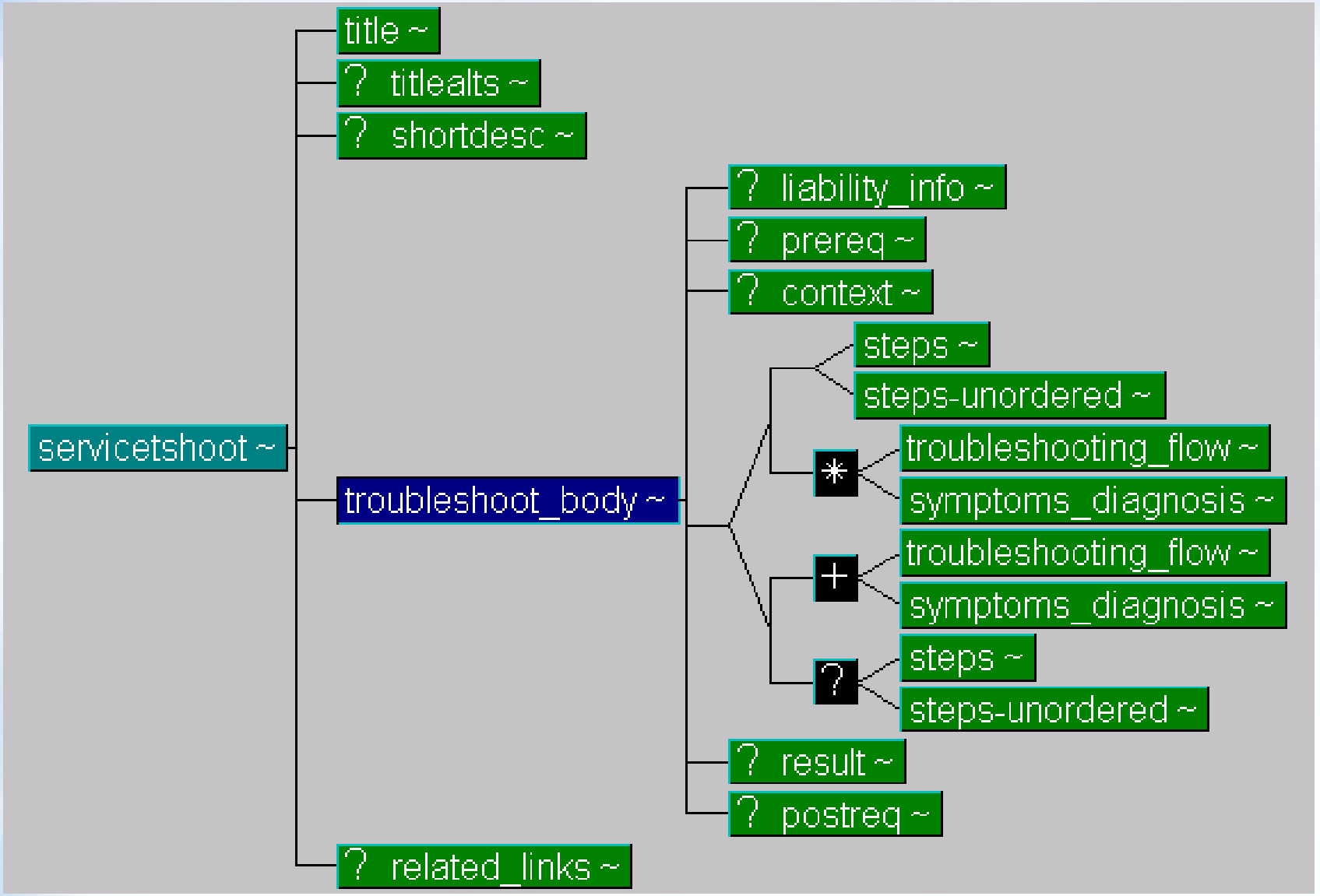
Mobile service troubleshooting DTD specialization



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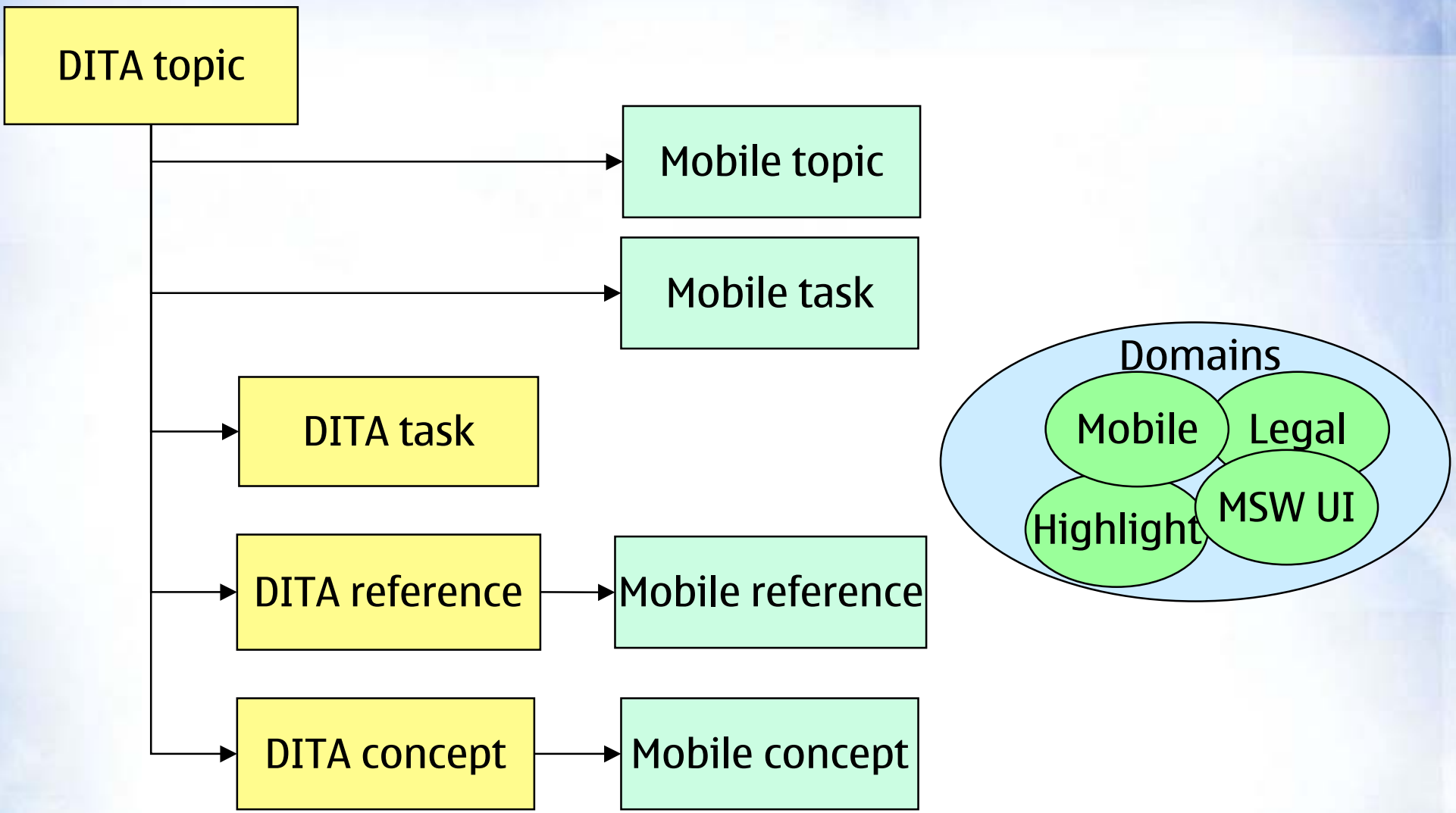
Current Mobile Specialization – Base Types



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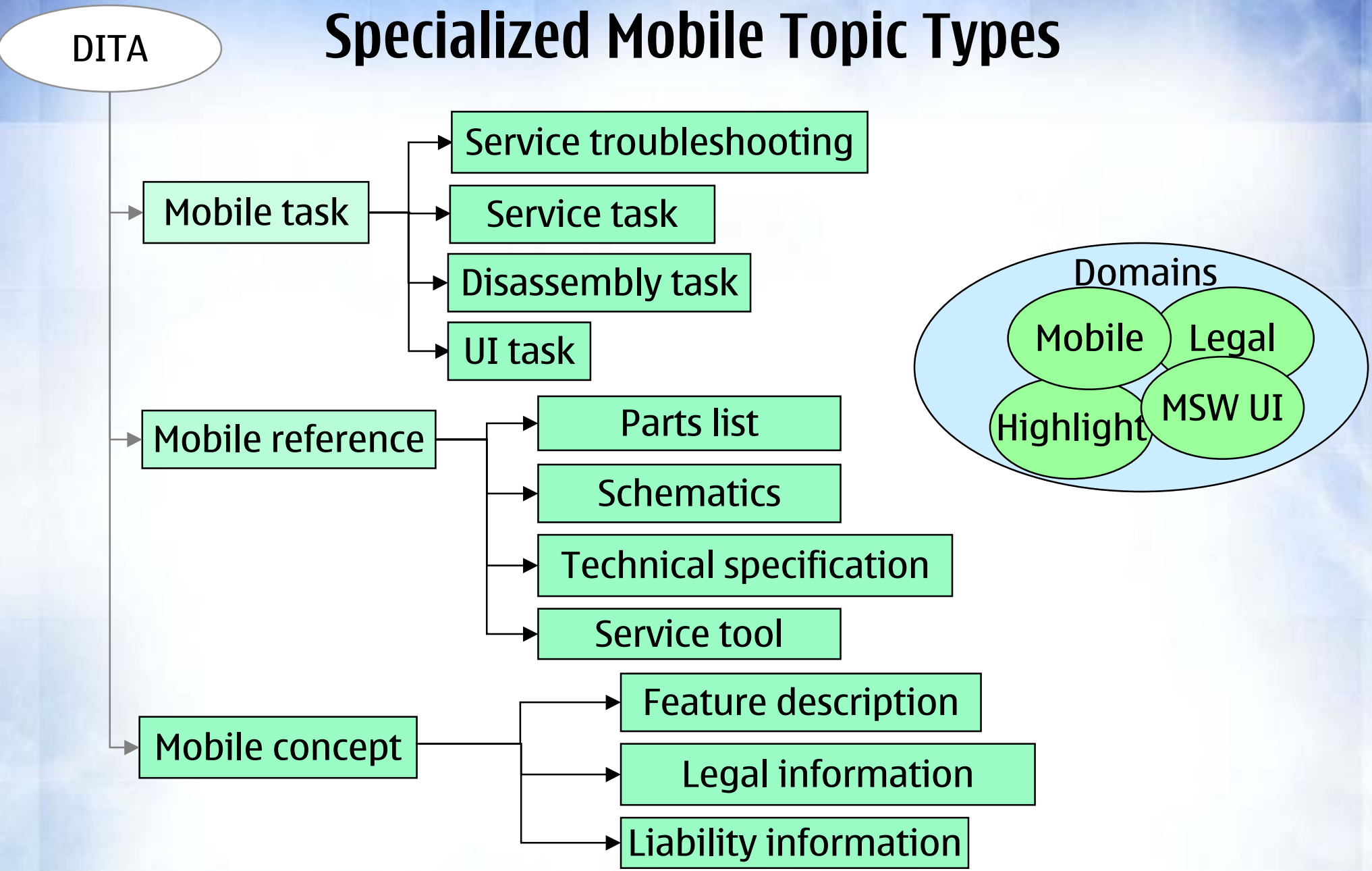
Specialized Mobile Topic Types



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Topic specialisation technique

- Design a content model for the specialised information type by defining the required elements and mapping them to the ancestor DITA elements. *Each type is more restrictive than the ancestor*
- Declare entities, elements and attributes and their mapping to base elements in a DITA specialisation file (“.mod” file) by copying and modifying the ancestor
- Declare the .mod file in the DTD (ancestor .mod files must also be declared).
- Create new XSLT transform module for the information type
- Import the transform
- Identify the elements to be transformed in a new way
- Add template rules to existing XSL transforms which match the new elements to override existing behaviour
- Test result

Design a topic for FAQs

topic.mod	faq.mod
<topic>	<faq>
<body>	<faqbody>
<section>	<faqgroup>
<simpletable>	<faqlist>
<strow>	<faqitem
<stentry>	<faqquest>
	<faqans>
	<faqprop>
<ph>	<name>
<xref>	<ownerEmail>

Declare the specialized elements

```
<!-- ============ Element definitions ============ -->
<!ELEMENT faq          (%title;, (%titlealts;)?, (%shortdesc;)?,
  (%prolog;)?, %faqbody;, (%related-links;)?, (%faq-info-types;)*
  )>
<!ATTLIST faq              id ID #REQUIRED
                           conref CDATA #IMPLIED
                           outputclass CDATA #IMPLIED
                           xml:lang NMTOKEN #IMPLIED
                           DTDVersion CDATA #FIXED "&DTDVersion;"
                           domains CDATA "&included-domains;">
<!ELEMENT faqbody      ((%faqgroup;)+ | (%faqlist;))>
<!ATTLIST faqbody          %univ-atts;
                           outputclass CDATA #IMPLIED>
<!ELEMENT faqgroup     ((%title;), (%faqlist;))>
<!ATTLIST faqgroup         spectitle CDATA #IMPLIED
                           %univ-atts;
                           outputclass CDATA #IMPLIED>
```

Declare the specialisation inheritance

```
<!-- ============ Element specialization declarations ============ -->
<!ATTLIST faq          class  CDATA "- topic/topic       faq/faq ">
<!ATTLIST faqbody      class  CDATA "- topic/body        faq/faqbody ">
<!ATTLIST faqgroup     class  CDATA "- topic/section     faq/faqgroup ">
<!ATTLIST faqlist      class  CDATA "- topic/simpletable faq/faqlist ">

<!ATTLIST faqitem      class  CDATA "- topic/strow       faq/faqitem ">
<!ATTLIST faqquest     class  CDATA "- topic/stentry     faq/faqquest ">
<!ATTLIST faqans       class  CDATA "- topic/stentry     faq/faqans ">
<!ATTLIST faqprop      class  CDATA "- topic/stentry     faq/faqprop ">
<!ATTLIST name         class  CDATA "- topic/ph          faq/name ">
<!ATTLIST ownerEmail   class  CDATA "- topic/xref        faq/ownerEmail ">
```

Declare the specialisation in the DTD

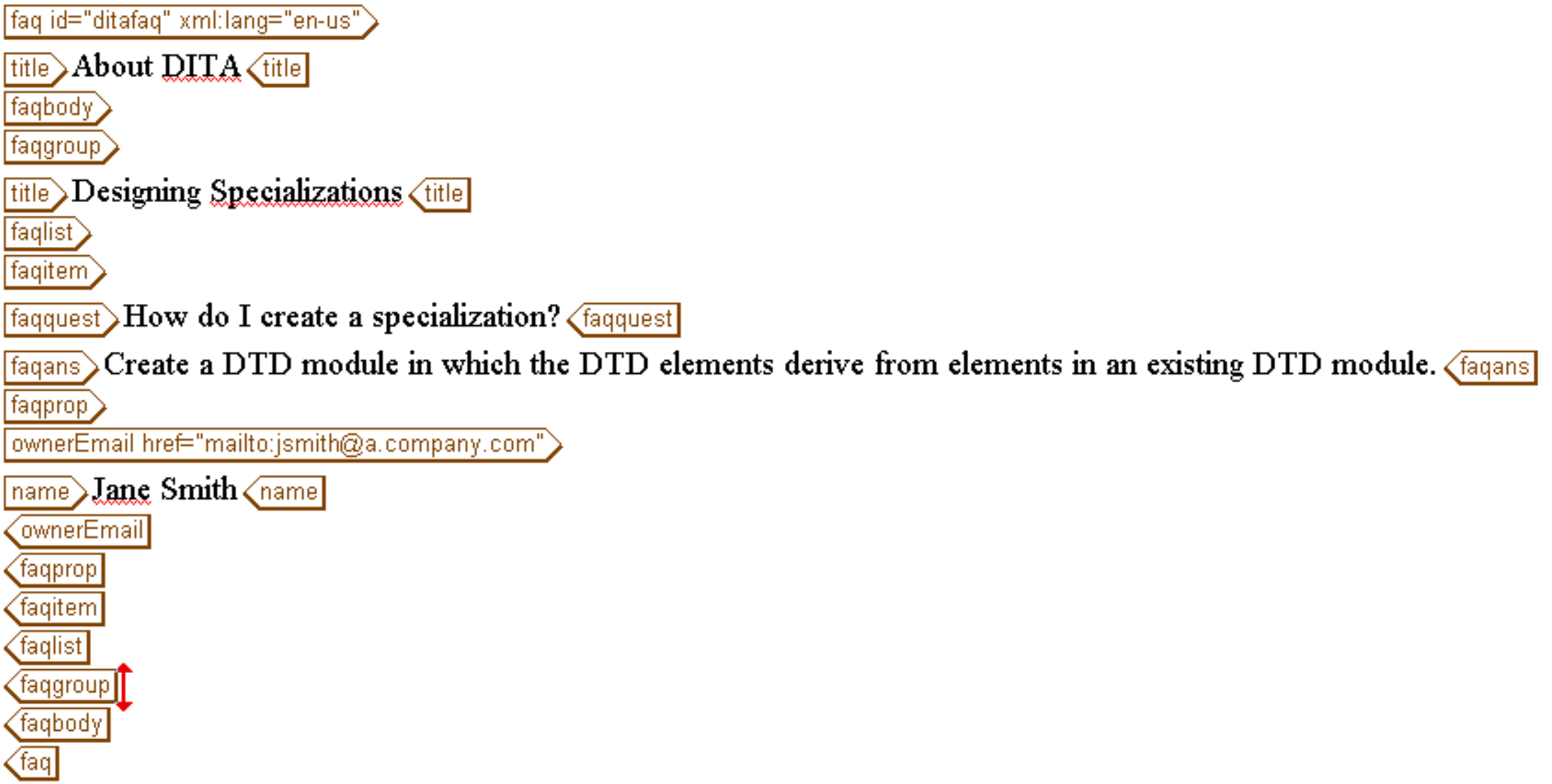
```
<!ENTITY % topic-type PUBLIC "-//IBM//ELEMENTS DITA
  Topic//EN" ./../dtd/topic.mod">

  %topic-type;

<!ENTITY % faq-typemod PUBLIC "-//IBM//ELEMENTS DITA
  FAQ//EN" "faq.mod">

  %faq-typemod;
```

Specialisation result



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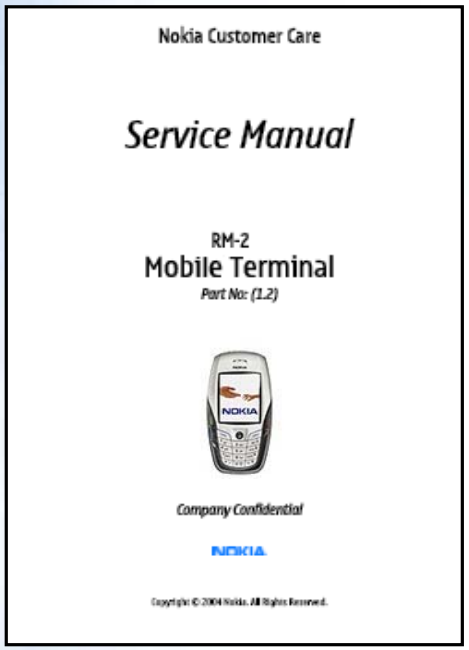
Examples

Demo of source content and outputs created using specialised DITA

Example 1: Mobile phone service information products


Nokia Customer Care

Service Manual

RM-2
Mobile Terminal
Part No: (1.2)

Company Confidential

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- Instructions for servicing mobile phones in dedicated service centers
- PDF, on-line and service software help information created from the same source
- High level of reuse of content for phones of the same family
- Different versions of an information product created from the same source based on agreements with service centers

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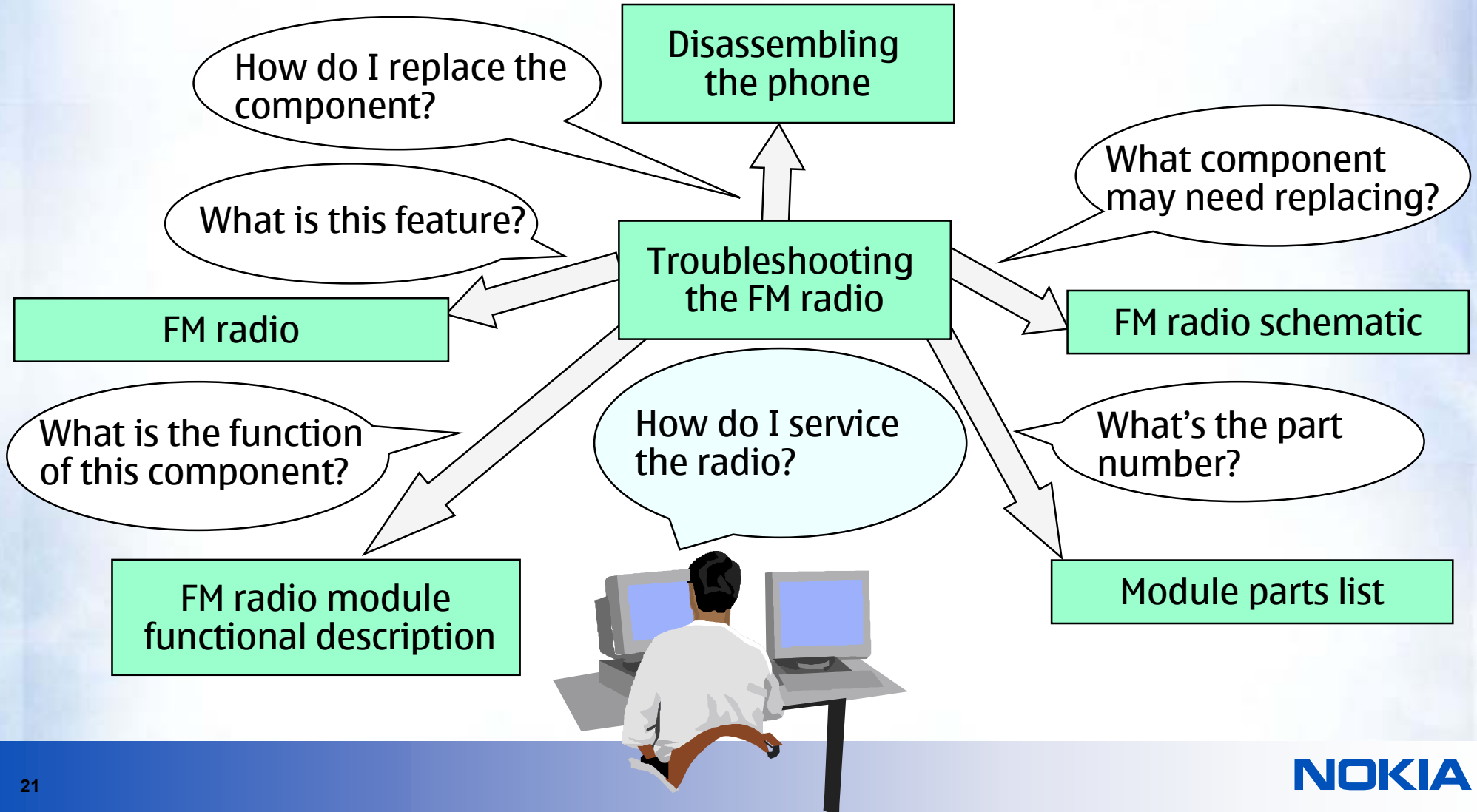
Topic-based architecture for servicing



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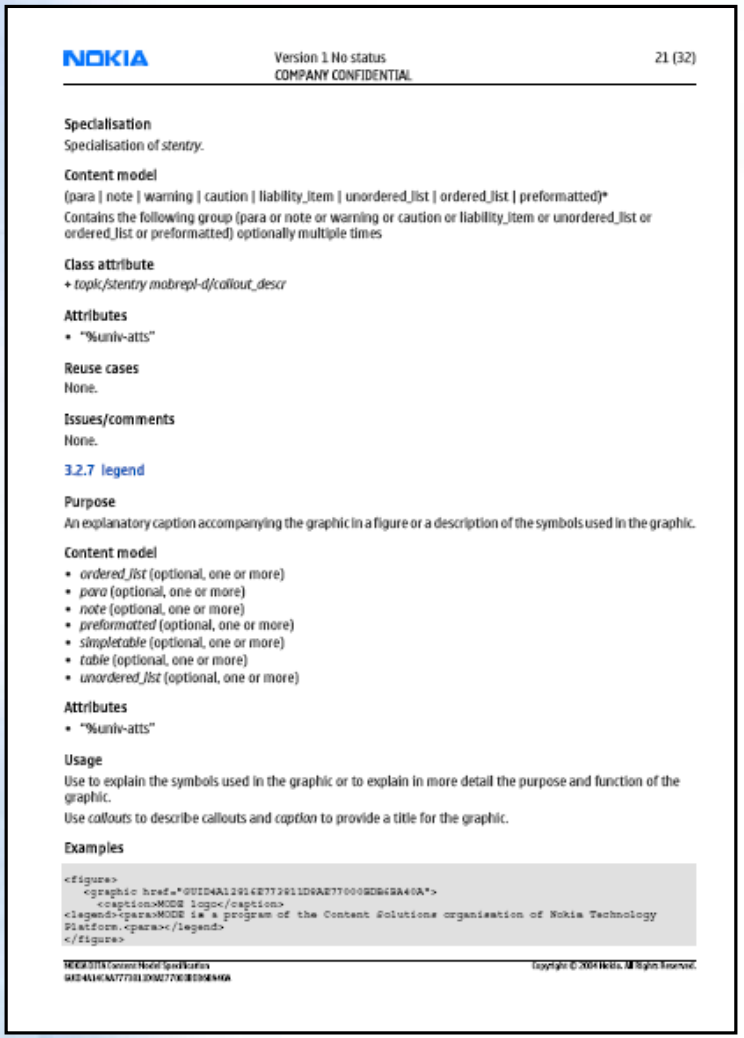
Example 2: Standard Nokia documents



NOKIA Version 1 No status 21 (32)
COMPANY CONFIDENTIAL

Specialisation
Specialisation of *stentry*.

Content model
(para | note | warning | caution | liability_item | unordered_list | ordered_list | preformatted)*
Contains the following group (para or note or warning or caution or liability_item or unordered_list or ordered_list or preformatted) optionally multiple times

Class attribute
+ *topic/stentry mobrepl-d/callout_descr*

Attributes
- "%univ-atts"

Reuse cases
None.

Issues/comments
None.

3.2.7 legend

Purpose
An explanatory caption accompanying the graphic in a figure or a description of the symbols used in the graphic.

Content model
- *ordered_list* (optional, one or more)
- *para* (optional, one or more)
- *note* (optional, one or more)
- *preformatted* (optional, one or more)
- *simpletable* (optional, one or more)
- *table* (optional, one or more)
- *unordered_list* (optional, one or more)

Attributes
- "%univ-atts"

Usage
Use to explain the symbols used in the graphic or to explain in more detail the purpose and function of the graphic.
Use *callouts* to describe callouts and *caption* to provide a title for the graphic.

Examples

```
<figure>
   <graphic href="GUID-4A12914E773911D9AE77000BDB6BA40A">
      <caption>MODE logo</caption>
<legend><para>MODE is a program of the Content Solutions organisation of Nokia Technology
Platform.</para></legend>
</figure>
```

- For specifications and other standard documents in Nokia
- Content created using standard mobile information types – Mobile concept, Mobile task and Mobile reference
- Multiple document type styles

Our experience so far

- DITA provides comprehensive DTDs. We specialized and simplified to reduce complexity.
- Specialization benefits have outweighed constraints
- Reuse business case demonstrated in first pilot projects
- Architecture up and running quickly compared to our previous experience of modular XML
- Transformation benefits demonstrated
- New modular architecture popular with authors
- Developing the whole content solution is challenging

Consider DITA if ..

- You are looking for a modular content architecture to meet your single-sourcing business objectives
- You want to get started with XML content creation as quickly as possible and minimize design costs
- You exchange information with other companies or organizations
- You are a small organization and want to tap into the benefits offered by a user community of an architecture standard

- You are a medium to large organization looking for a common modular XML architecture to reduce design and support costs

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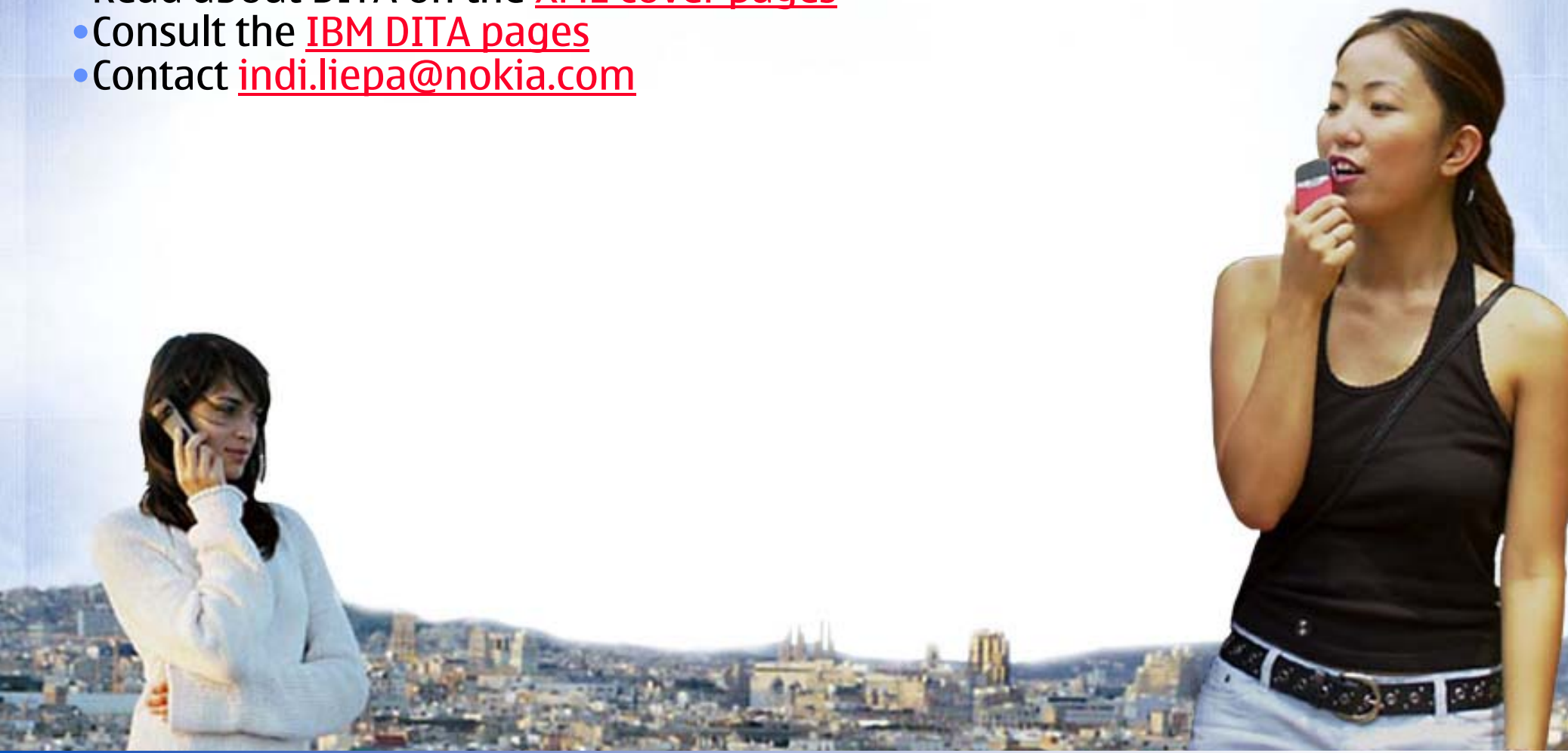
If you want to know more:

- Download DITA and learn about OASIS DITA
- Read about DITA on the XML cover pages
- Consult the IBM DITA pages
- Contact indi.liepa@nokia.com



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