Print & Page Layout Community Group

@ W3C

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Print & Page Layout Community Group
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@pplcg
irc://irc.w3.org:6665/#ppl

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Print & Page Layout Community Group

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Print & Page Layout Community Group 1

- Introducing the Community Group
- Survey and results
- Feedback in XSL-FO processing
- Feedback extension
- Possible future work

Print & Page Layout Community Group 2

“The Print and Page Layout Community Group is open to all aspects of page layout theory and practice. We can and will cover everything from the Crystal Goblet through to specifications and on to the nitty-gritty of writing stylesheets. You will find XSL-FO discussed here, but you will also find other stylesheet languages, and all are equally welcome.”

History 3

- Started after XML Prague 2012
- Interest in feedback in processing after XML Prague 2013
  - Presentation by Patrick Gundlach of Speedata
- Survey and revised description January 2014
- ????? after XML Prague 2014

Who we are 4

Member involvements 5

Question 01 My involvement is with:

Answers	Skips
13	0
100%	0%

	0% 27% 54%	COUNT	PERCENT
XML consultant/service provider		7	54%
Professional publisher		2	15%
Other Option		1	8%
In-house technical communications/publications		1	8%
Standards body		1	8%
Publishing consultant/service provider		1	8%
Authoring/education		0	0%

Member interests 6

Question 05 — My interest in ... is as ...

Answers 13 (100%) Skips 0 (0%)

	SPECIALIST	GENERALIST	NOVICE	INTERESTED BYSTANDER	UNINTERESTED
Page layout	10	3	0	0	0
Single source/multiple outputs	9	2	0	1	1
XML	13	0	0	0	0
HTML/XHTML/HTML 5	4	7	2	0	0
CSS	3	8	2	0	0
XSL-FO	8	4	0	0	0
Digital Publishing	7	5	0	0	0
Writing software	7	4	0	1	0
Standards development	7	4	0	2	0

PPL WG Members' Technologies 7

- AGFA/Xerox CAPS
- ArborText
- Cognos
- DITA Open Toolkit
- DSSSL
- Developed in-house
- DynaText
- EPUB/EPUB3
- FrameMaker
- HTML+CSS
- InDesign
- LogiXML
- Omnimark
- Panorama
- Perl POD
- Quark
- speedata
- TeX/LaTex
- Troff
- WordPerfect SGML/XML tools
- XSL-FO

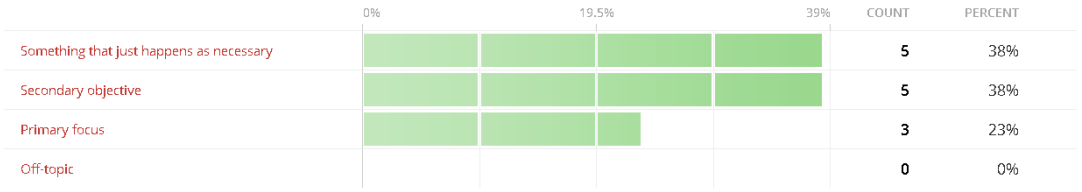
Survey 8

- Original group description was dated
  - Mentioned XML Prague 2012 as “recent”
- Group discussed what was important
- Survey found priorities
- 64 responses
- Member and non-member responses very different

XSL-FO should be... 9

Question 06 — XSL-FO discussion at the PPL CG should be:

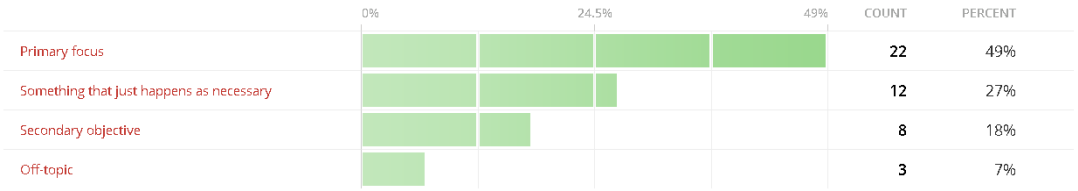
Answers 13 (100%) Skips 0 (0%)



	COUNT	PERCENT
Something that just happens as necessary	5	38%
Secondary objective	5	38%
Primary focus	3	23%
Off-topic	0	0%

Question 06 — XSL-FO discussion at the PPL CG should be:

Answers 45 (100%) Skips 0 (0%)

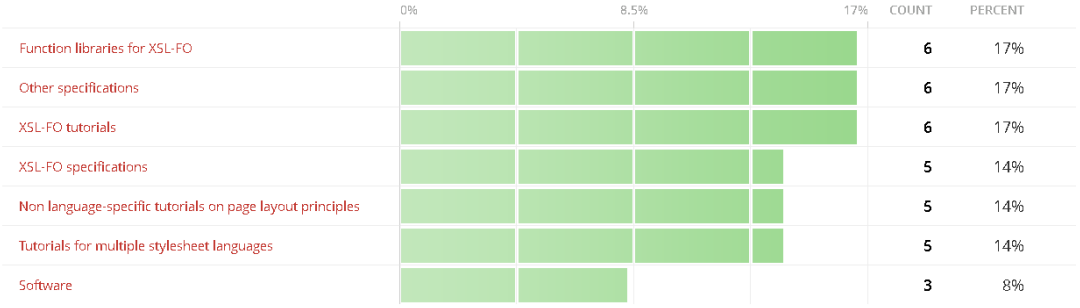


	COUNT	PERCENT
Primary focus	22	49%
Something that just happens as necessary	12	27%
Secondary objective	8	18%
Off-topic	3	7%

PPL CG should develop... 10

Question 07 — The PPL CG should develop:

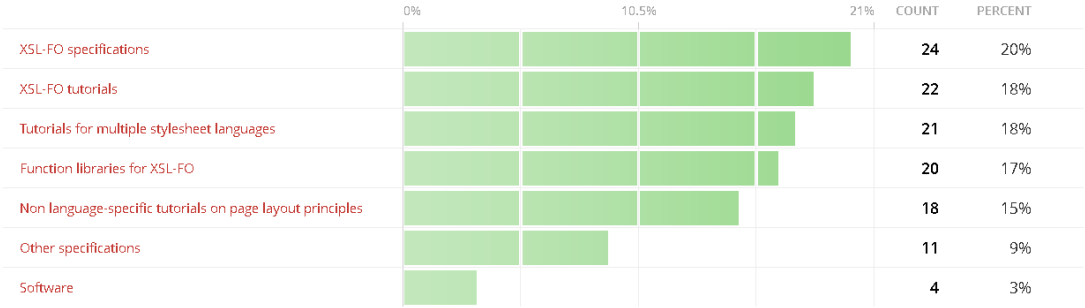
Answers 36 (277%) Skips 0 (0%)



	COUNT	PERCENT
Function libraries for XSL-FO	6	17%
Other specifications	6	17%
XSL-FO tutorials	6	17%
XSL-FO specifications	5	14%
Non language-specific tutorials on page layout principles	5	14%
Tutorials for multiple stylesheet languages	5	14%
Software	3	8%

Question 07 — The PPL CG should develop:

Answers 120 (267%) Skips 0 (0%)

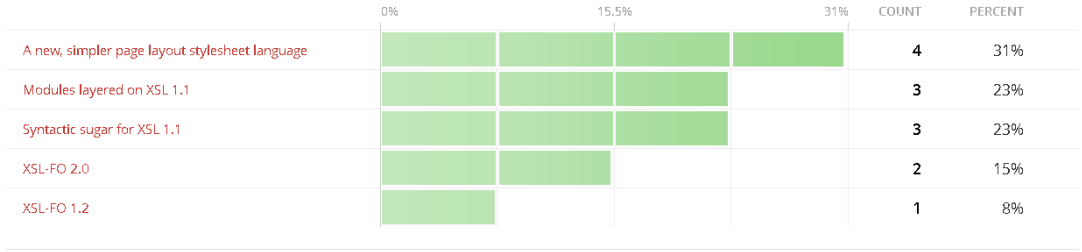


	COUNT	PERCENT
XSL-FO specifications	24	20%
XSL-FO tutorials	22	18%
Tutorials for multiple stylesheet languages	21	18%
Function libraries for XSL-FO	20	17%
Non language-specific tutorials on page layout principles	18	15%
Other specifications	11	9%
Software	4	3%

Specifications should be... 11

Question 08 — If the PPL CG works on a styling specification, it should be:

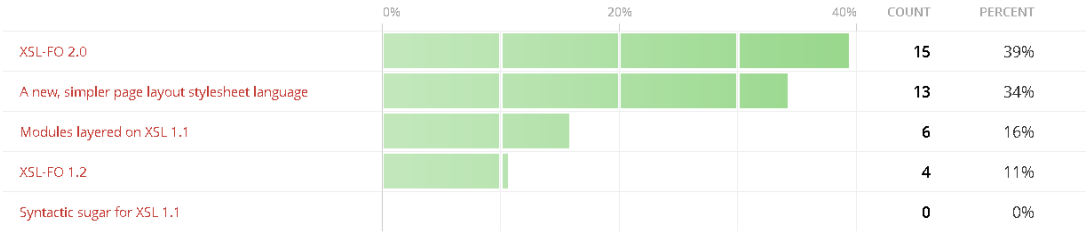
Answers 13 (100%) Skips 0 (0%)



	COUNT	PERCENT
A new, simpler page layout stylesheet language	4	31%
Modules layered on XSL 1.1	3	23%
Syntactic sugar for XSL 1.1	3	23%
XSL-FO 2.0	2	15%
XSL-FO 1.2	1	8%

Question 08 — If the PPL CG works on a styling specification, it should be:

Answers 38 (84%) Skips 7 (16%)

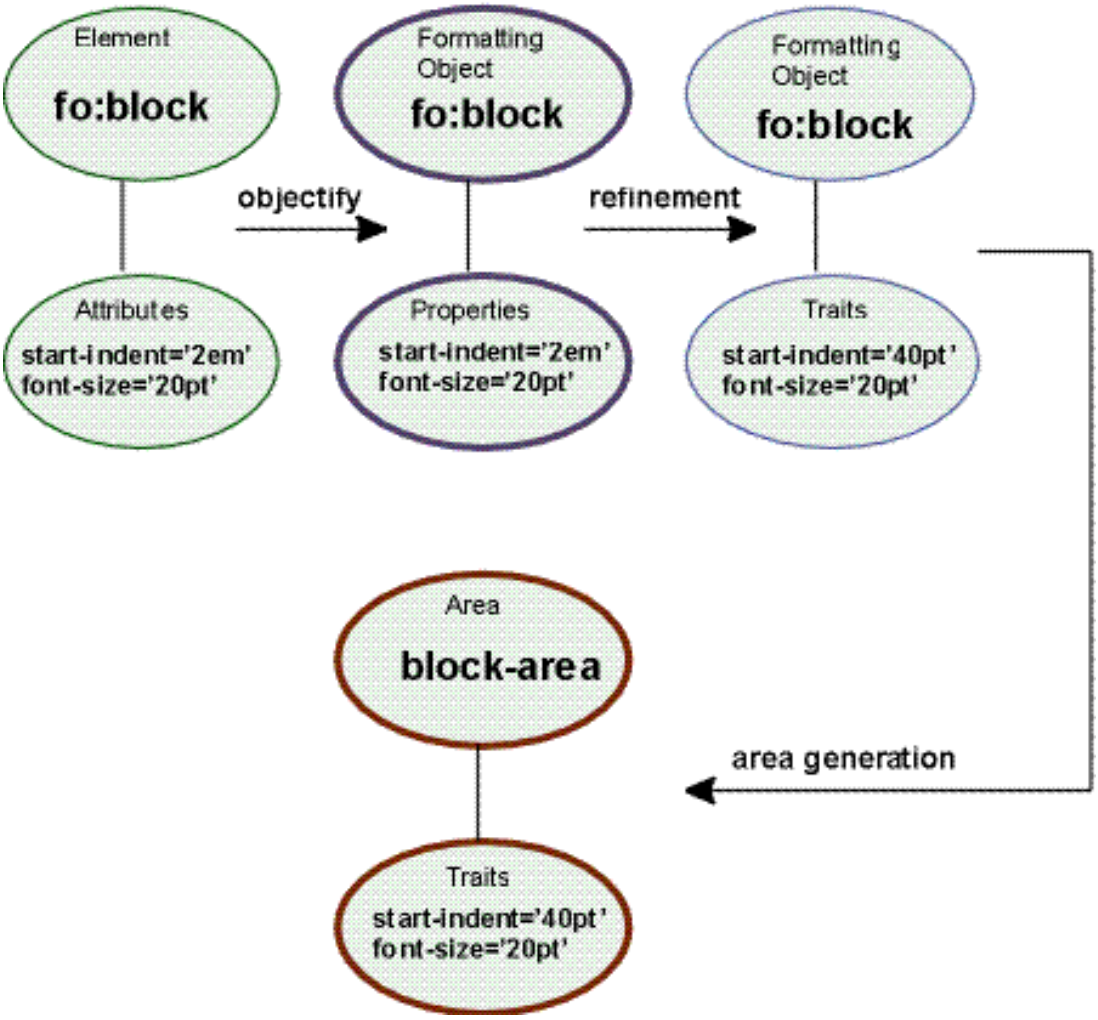


	COUNT	PERCENT
XSL-FO 2.0	15	39%
A new, simpler page layout stylesheet language	13	34%
Modules layered on XSL 1.1	6	16%
XSL-FO 1.2	4	11%
Syntactic sugar for XSL 1.1	0	0%

Decision making in XSL-FO processing 12

- Interesting to PPL CG members
  - Spurred by Patrick Gundlach of Speedata
- Decision making in XSL-FO processing model
- PPL CG extension for running formatter inside XSLT
- Possible future work

XSL-FO Processing Model 13



What Decision Making? 14

- Making a choice between alternatives
- Deciding, e.g.:
  - Where to break lines
  - Where to break blocks
  - Where to place floats
  - What to use as marker content
  - Scale of graphics
  - Space-before and space-after of nested blocks
- No control once FO produced
- "Fire-and-forget" processing

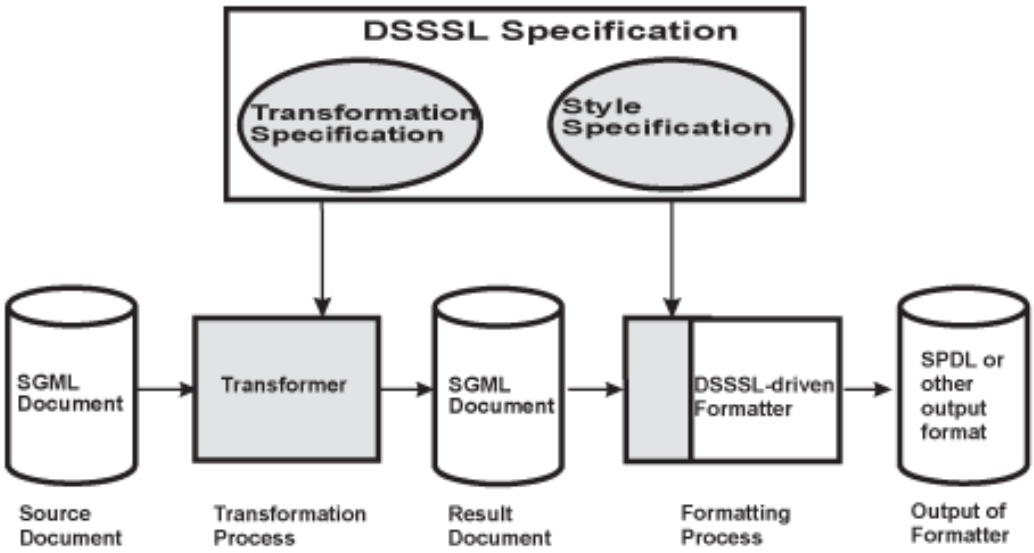
"Fire-and-forget" 15

"**Fire-and-forget** is a term for a type of missile guidance which does not require further guidance after launch such as illumination of the target or wire guidance, and can hit its target without the launcher being in line-of-sight of the target...
Generally, information about the target is programmed into the missile just prior to launch. ... *After it is fired, the missile guides itself* by some combination of gyroscopes and accelerometers, GPS, organic radar, and infrared optics."

`https://en.wikipedia.org/wiki/Fire-and-forget`
(Italics added)

XSL-FO Follows DSSSL 16

"XSL builds on the prior work on Cascading Style Sheets [CSS2] and the Document Style Semantics and Specification Language [DSSSL]."



XSL-FO 2.0 Requirements 17

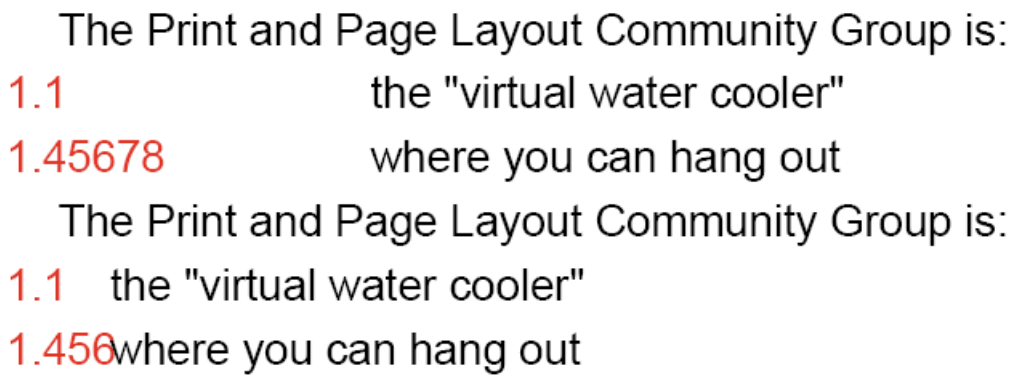
- Section 2.3, Including information from formatting time
  - "to allow expressions that include information that's only available at formatting time."
- Section 3.2, Pagination information
  - "to compute expressions that are based on information that is only available after the pagination stage"
- Section 2.1.4, Copyfitting
  - "shrink or grow content (change properties of text, line-spacing, ...) to make it constrain to a certain area."
  - "multiple instances of alternative content can be provided to determine best fit"
  - act "across a given number of pages, regions, columns etc, for example to constrain the number of pages to 5 pages."

Area Tree As XSLT Extension Function 18

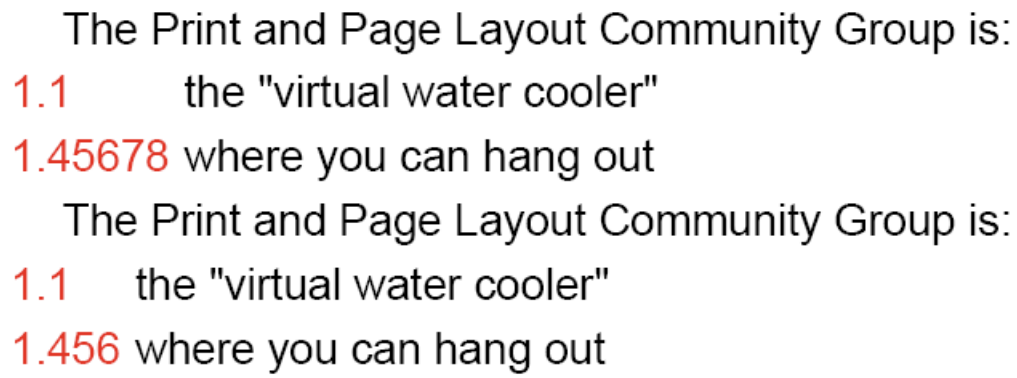
`http://www.w3.org/community/ppl/wiki/XSLTExtensions`

- Updated distribution before the end of today!
- Saxon and Xerces extension functions
- Runs FOP or Antenna House on input and returns area tree
- First implemented by Arved Sandstrom of MagicLamp Software Solutions

Example: List Label Length 19



Adjusted List Label Length 20



Transform With Overrides

21

```
<xsl:variable name="overrides">
  <overrides>
    <!-- Find the maximum label width for each list and convert to pt. -->
    <xsl:for-each select="key('lists', true())">
    <xsl:variable name="id" select="@id" as="xs:string" />
    <xsl:variable name="block"
              select="key('blocks', $id, $area-tree)[1]" />
    <override
             id="{$id}"
             label-width="{max($block//text/@ipd) div 1000}pt" />
    </xsl:for-each>
  </overrides>
</xsl:variable>

<xsl:apply-templates select="/">
  <xsl:with-param name="overrides" select="$overrides" as="document-node()"
tunnel="yes" />
</xsl:apply-templates>
```

Example: Fill Box

22

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Iteration 23

```
<xsl:choose>
  <xsl:when test="$iteration eq $iteration-max">
    <!-- Format final output -->
  </xsl:when>
  <xsl:when test="$bpd div 1000 > $target-height">
    <xsl:call-template name="do-box">
      <xsl:with-param
          name="font-size"
          select="($font-size + $font-size.minimum) div 2"
          as="xs:double" />
      <xsl:with-param
          name="font-size.maximum"
          select="$font-size"
          as="xs:double"
          tunnel="yes" />
      <xsl:with-param name="iteration" select="$iteration + 1" as="xs:integer" />
    </xsl:call-template>
  </xsl:when>
  <xsl:when test="$target-height - ($bpd div 1000) &lt;
                  $target-height * $tolerance div $target-height">
    <xsl:message>It fits.</xsl:message>
    <!-- Format final output -->
  </xsl:when>
```

Iteration (continued) 24

```
  <xsl:otherwise>
    <xsl:call-template name="do-box">
      <xsl:with-param
          name="font-size"
          select="($font-size + $font-size.maximum) div 2"
          as="xs:double" />
      <xsl:with-param
          name="font-size.mimimum"
          select="$font-size"
          as="xs:double"
          tunnel="yes" />
      <xsl:with-param name="iteration" select="$iteration + 1" as="xs:integer" />
    </xsl:call-template>
  </xsl:otherwise>
</xsl:choose>
```

Using the extension 25

```
<xsl:variable
    name="area-tree"
    select="ppl:area-tree($fo_tree)"
    as="document-node()?" />

<xsl:variable
    name="block"
    select="ppl:block-by-id($area-tree, key('boxes', true())[1]/
@id)"
    as="element()" />

<xsl:variable
    name="bpd"
    select="ppl:block-bpd($block)"
    as="xs:double" />
```

Summary: Extension Function 26

`http://www.w3.org/community/ppl/wiki/XSLTExtensions`

- It shouldn't be this hard
- Different formatter: different area tree
  - Different elements, attributes, namespace
  - Different length format
- Common area tree format and/or accessor library would make more portable
  - `ppl:block-bpd()` example of what could be done
  - Accessors plus common format would be better

Adapt Saxon-CE Event Model? 27

- From XSL-FO 2.0 requirements:
  - "... information that's only available at formatting time."
  - "... based on information that is only available after the pagination stage"
  - "multiple instances of alternative content can be provided to determine best fit"
  - act "across a given number of pages, regions, columns etc, for example to constrain the number of pages to 5 pages."
- How to put decision making inside the formatter?
- How to do it without inventing a complicated new language?

Saxon-CE and XSL-FO Events 28

- Saxon-CE: Template for context in mode corresponding to UI event

```
<xsl:template match="button[@id='reset']" mode="ixsl:onclick">
  <xsl:for-each select="//div[starts-with(@id, 'square')]">
    <xsl:result-document href="#{@id}" method="replace-content">
      <xsl:text>&amp;#xa0;</xsl:text>
    </xsl:result-document>
  </xsl:for-each>
</xsl:template>
```

- XSL-FO: Template for context in mode corresponding to formatter event?

```
<xsl:template match="BlockArea[key('fig', @id, $src-doc)]"
              mode="ppl:overflow">
  <xsl:result-document href="#{@id}/area:external-graphic"
                       method="replace-content">
    <xsl:copy>
      <xsl:apply-templates select="@*"/>
      <xsl:attribute name="width"
                select="ppl:scale(area:external-graphic/@width,
                                  0.8)"/>
      <xsl:apply-templates/>
    </xsl:copy>
  </xsl:result-document>
</xsl:template>
```

Summary: Event Handling 29

- Not (yet) implemented
- Solves expression language question
- What are the useful event types?
- Should it modify FO tree, area tree, or both?

What you can do 30

- Use the extension
  http://www.w3.org/community/ppl/wiki/XSLTExtensions
- Join the Print and Page Layout Community Group
- Contribute to PPL CG work

References 31

- slide 2 – Print & Page Layout Community Group
  http://www.w3.org/community/ppl/
- slide 7 – Technologies
  http://lists.w3.org/Archives/Public/public-ppl/2013Dec/0032.html


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