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[Continued on next page]

(54) Title: METHOD FOR MAKING A DIGITAL REPRESENTATION OF A PRINTED PRODUCT HAVING A PLURALITY OF VERSIONS

(57) Abstract: A method for making a digital representation of a printed product having a plurality of versions, the method including (a) creating a product structure for digitally representing the printed product; (b) including a composition of the printed product out of sections in the product structure; (c) getting first input data for defining a first version out of the plurality of versions; (d) getting second input data for defining a second version out of the plurality of versions; and (e) modifying the product structure based on the first and the second input data, thus obtaining the digital representation of the printed product having the plurality of versions.

		Page1	Page2	Page3	Page4
DOC[1]	PSS[1]	FRONT COVER (Dutch)	BACK COVER (Dutch)		
DOC[2]	PSS[2]	FRONT COVER (French)	BACK COVER (French)		
DOC[3]	PSS[3]	FRONT COVER (German)	BACK COVER (German)		
DOC[4]	PSS[4]	regional news (region[1]) (German)	regional news (region[1]) (German)	regional news (region[1]) (German)	regional news (region[1]) (German)
DOC[5]	PSS[5]	regional news (region[2]) (French)	regional news (region[2]) (French)	regional news (region[2]) (French)	regional news (region[2]) (French)
DOC[6]	PSS[6]	regional news (region[3]) (French)	regional news (region[3]) (French)	regional news (region[3]) (French)	regional news (region[3]) (French)
DOC[7]	PSS[7]	regional news (region[4]) (Dutch)	regional news (region[4]) (Dutch)	regional news (region[4]) (Dutch)	regional news (region[4]) (Dutch)
DOC[8]	PSS[8]	regional news (region[5]) (Dutch)	regional news (region[5]) (Dutch)	regional news (region[5]) (Dutch)	regional news (region[5]) (Dutch)
DOC[9]	PSS[9]	retail advertising (picture[1])	retail advertising (picture[2])		
DOC[10]	PSS[10]	retail advertising (PZ[1])	retail advertising (PZ[1])		
DOC[11]	PSS[11]	retail advertising (PZ[2])	retail advertising (PZ[2])		

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METHOD FOR MAKING A DIGITAL REPRESENTATION OF A PRINTED PRODUCT
HAVING A PLURALITY OF VERSIONS

FIELD OF THE INVENTION

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The present invention relates to a method for the production of printed products. In particular the invention relates to a method for creating a plurality of versions of a printed product from a digital representation of input documents.

10

BACKGROUND OF THE INVENTION

The graphic arts industry

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The graphic arts industry deals with the production of printed products such as magazines, catalogues, packaging, promotional or corporate materials, books or specialty products. The printed products are typically produced using offset, flexographic, screen, gravure, digital, sheet- or web-fed printing presses.

20

Referring to Figure 1, the production of a printed product in the graphic enterprise involves an intense professional interaction between at least three parties.

25

A first party is the print buyer 110, 111. The print buyer is a customer. He may be a publisher (for example of magazines or books) or a corporate organization (as for corporate documents or in the packaging industry) or a pre-press house that acts upon one of the former. In large organizations, the print buyer may also be also be

30

an in-house pre-press department.

A second party is the work center 120. The work center is the entity where the actual transformation from digital input documents to printed product takes place.

35

A third party is the customer service representative 130. He serves as the middle man between a print buyer and the work center.

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Overview workflow

Referring to Figure 2, a typical workflow in the graphic
5 enterprise could be as follows. After a definition step 200 of a
printed product by the print buyer, the customer service
representative interprets the needs of the print buyer in technical
terms and communicates them to the work center. Based on feedback
from the work center, the customer service representative calculates
10 a cost of the print project and quotes a price to the print buyer.
If a deal is made, the print buyer submits 210 to the customer
service representative the input materials. The work center
processes these input materials into a softcopy or hardcopy proof
for customer approval. If necessary, the customer gives instructions
15 to correct the proof. This customer approval cycle 220 is managed by
the customer service representative and may be repeated a few times
until final approval by the customer is obtained. After the customer
approval, the manufacturing process 230 of the printed product can
be initiated followed by delivery and billing 240.

20

manufacturing process: production plan

Based on the availability of presses, paper stock, inks and
finishing equipment the production planning department makes a
25 production plan. The same department also defines the physical
structure of the product. With physical structure is meant how the
publication is divided into sections, what the size of said sections
is and how they are bound together to make up the final product.

30 Having the sections identified, the production planning
department can also determine how the sections are to be printed.
The topological mapping of the logical page order of a section to
page positions and orientations on the printing plate leads to the
definition of the signatures and the imposition layout. Given the
35 complexity of this mapping, the production planning department
preferably uses a production planning system or software to manage
this process. An example of a system that comprises such

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functionality is the Agfa's DelanoTM software product developed and marketed by the company Agfa-Gevaert NV.

5 The imposition layout enables to plan for the required finishing and binding operations of the printed sheets. The different bindery sections have to be cut and fed into the folders. Afterwards, the folded sections are collected together for binding (stitching, gluing, sewing etc.).

10 digital content management

One of the challenges in the printing industry is to ensure that the right digital content ends up correctly in the final publications. The content assignment can be broken up into two
15 separate steps. In a first step, the customer assigns the digital content to logical pages of the final printed product. In order to check if this first step has been performed correctly, the customer approves the content assignment using a reader's spread view of the product. An example of such a reader's spread is shown in Figure 3
20 and visualizes the pages of a small regional newspaper row by row in such a way as if the reader was browsing through the printed product.

A second step is carried out in the prepress department and
25 consists of putting the logical pages correctly in run lists associated with the imposition templates. This mapping makes use of the imposition templates that were decided on in the production plan.

30 Digital content management becomes considerably more complex in the case of cross-product manufacturing, i.e., the case that sections of different products are printed using one shared printing plate, for example for reasons of cost optimization. In that case digital content management is preferably performed by means of a
35 management system information system ("MIS"). This product is specifically designed for a customer service representative and

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comprises functionality to assist him in managing the information and logistic flows between a work center and a print buyer.

Some existing management information systems comprise a cost estimation module. Provided that sufficiently detailed information is possible of the process-related parameters to manufacture a specific printed product, such a cost estimation module can determine what the cost is for producing said printed product. This information can be used by the customer service representative to a quote price of a printed product to the print buyer.

Versioning

The set-up costs to initiate a print-run on a traditional press (pre-press, plate-making, plate-mounting,...) are considerable, and as a result, traditional printing is usually reserved for long press-runs (typically "thousand"). More or less the opposite is the case in digital printing, where set-up costs are relatively low, but where variable costs (ink or toner and media) are high. As a result, digital printing is usually reserved for short press runs. One specific example where digital printing is the method of choice is variable data printing. Variable data printing refers to a method in which each individual printed result comprises at least one customized field. The customization is based on variable data stored in a database. Examples of variable data printing include direct mailings with a customized name and address field or a sophisticated marketing campaign in which an offering is customized based on the recipient's profile. A press run in the case variable data printing may be as short as one single specimen and there may be as many individual press-runs as customized specimens.

In between the two extremes of long press runs producing identical specimens and extremely short press-runs producing customized specimens are the so-called 'versioned' printed products.

- 5 -

The specimens of a versioned printed product are not necessarily all identical, but the variations are small enough in number that can be realized by conventional printing techniques.

5 One example is a household furniture catalogue that is to be published in different versions featuring different languages. Assuming that the pictures are the same for all versions, the color plates can be shared by all versions, and only black plate representing the text has to be different for the different
10 versions.

Another example is an advertising leaflet that is to be printed for different countries having different currencies or different pricing.

15 Yet another example are advertising leaflets that are customized for specific retailers. In that case, a number of pages of said leaflet may show a selection of products or brands that is specific for said retailer. Very often, the front or back page is
20 also customized for a specific retailer.

There are examples of versioned products in which the number of pages varies across different versions. In some countries, the local authorities tax the free distribution of advertising material. This
25 tax can vary from region to region and there are instances where said tax can be dodged by including editorial content with the distribution. Depending on the local situation, costs may be reduced by including editorial content in versions for specific regions. This will result in an increase of the number of pages for said
30 versions.

Small regional versions of newspaper also can be considered as versioned products. Usually most of the content is identical for all the versions while one section, for example, contains dedicated,
35 regional information.

Impact of versioned products on cost

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Product versioning can have a profound impact on overall cost of the printed product.

5 A first reason for this is that the content management task for producing versioned printed products is significantly more complex than in the case of non-versioned products. This is particularly the case if different versions are not defined at the page level, but at the level of page components. Such complexity increases the risk of
10 mistakes and the need for additional approval cycles. In general, the complexity of versioned products leads to increased costs.

A second reason is that the production costs often become content-dependent. Considering that in many instances printing
15 plates in versioned products can be shared across different versions, this opens up a possibility for optimization of the number of printing plates and press-runs.

Prior art methods for producing versioned products

20

Prior art methods and systems to create versioned printed products rely on creating a number of independent versioned products as if they were independent printed products.

25 For example, one prior art method starts from a particular existing version of a printed product and then derives a new version by modifying or replacing elements in said existing version to obtain a different version.

30 An important drawback of the prior art methods and systems is that the common information in the different versions is duplicated, resulting in redundant storage of information.

A second problem with the prior art methods is that each
35 version of the printed product exists on its own, and that production optimization across different versions to reduce cost is not available. The prior art production planning systems, for

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example, do not support optimization of the number of printing plates and press runs across different versions of a printed product.

5 For the same reason, the existing management information systems fail to accurately predict the minimum cost for producing a versioned printed product.

10 Yet another problem of the prior art methods and systems is that the editing or modification of a page element during an approval cycle requires reprocessing all the affected pages in all the affected versions independently. This leads to redundant processing and increases the risk of inconsistencies across different versions.

15

SUMMARY OF THE INVENTION

According to the current invention, an improved method and system are presented for making a digital representation of a
20 versioned printed product.

The present invention is a method as claimed in independent claim 1. Preferred embodiments of the invention are set out in the dependent claims. Preferably, a method in accordance with the
25 invention is implemented by a computer program.

The invention also includes a data processing system (such as a computer, a computer network system, etc.) comprising means for carrying out such a method and a computer readable medium comprising
30 program code adapted to perform such a method.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 shows an overview of the parties that are involved in the
35 graphic enterprise.

Figure 2 shows an overview of a workflow in the graphic enterprise.

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Figure 3 shows a page spread.

Figure 4 shows a first example of a list of source documents to
5 create a small regional newspaper and the corresponding page source
sequences.

Figure 5 shows a first example of a list of source documents to
create a small regional newspaper and the corresponding page source
10 sequences.

Figure 6 shows an example where the page source sequences are used
contain color separations.

15 Figure 7 shows an example of a page spitting step and stacking step
according to an embodiment of the current invention.

Figure 8 shows an example of page sequence layers obtained by
applying a page split step on page source sequences.

20 Figure 9 shows matrix to define what page layer sequences are used
by a stacking step to create a version.

DETAILED DESCRIPTION OF THE INVENTION

25 In this document, a page, a section and other suchlike terms
may denote the physical entity as it is known to a person skilled in
the art, a digital representation of said physical entity or a
depiction thereof on a computer display. What is meant can be
30 determined from the context.

A computer program denotes, in this document, an aggregate of
computer program code means. The computer code means may be
organized in one entity, or in a plurality of entities that operate
35 in cooperation with each other. The computer code means may run on
one single computing processor or on a plurality of such processors.

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In this document, a versioned printed product means a printed product comprising specimens that share at least partially the same logical structure and content but also comprise at least some content that differs between at least two specimens. Examples of
5 versioned printed products include customized catalogues, advertising leaflets, newspapers having regional editions, books sharing pictorial material but having text published in different languages etc.

10 Defining printed product

According to one embodiment of the current invention and referring to Figure 2, the production of a versioned product starts with a step 200 of defining the printed product. This task is
15 typically performed by the print buyer. Defining the product implies defining both its content and its version structure. Content can comprise text, graphics or images, while structure comprises the topological mapping of the content on pages in the final product. This is explained by means of an example that is further developed
20 throughout this document.

According to the example, a printed product is a small newspaper containing 8 pages that are to be printed as two sections of four pages. The term "section" in this document shall mean a
25 group of pages that is obtained by folding and cutting a single printed sheet.

In this document, one information unit of a given type (text, graphic or image) that belongs to a specific page in the document
30 is called a content element. Referring to Figure 4, for example, the text in document DOC[5] of a third page with regional news for region[2] in French is one content element. Similarly, the image picture[1] on page 1 of document DOC[9] is one content element. Said image can be monochrome or in color.

35

In this document, a part in a printed product shall mean a group of content elements of a document that are structurally and

- 10 -

content wise related and of which a version can be defined, such as the body of a book, a set of regional pages in a regional newspaper, the front and back cover of a publication, an insert, an advertisement etc.

5

According to the example, the printed product is subdivided in three parts.

10 A first part of the newspaper contains two pages representing the front and back cover of the newspaper. This part is to be printed in three different versions corresponding to the languages that are spoken in the different regions where the newspaper is to be published.

15 A second part of the newspaper comprises four pages with regional news. A separate version of this part exists for five distinct regions labeled region[1], region[2], region[3], region[4] and region[5].

20 A third part of the newspaper comprises advertising information. This second part contains color pictures that are the same for all the versions. Additionally this part contains pricing information for two distinct pricing zones labeled PZ[1] and PZ[2].

25 The structure of the small newspaper can be summarized as follows:

- The cover page (page one) and back page (page eight) are printed in three versions corresponding to three languages.
- Pages 3 to 6 contain regional news and are printed in five versions corresponding to five regions; and,
- Page 2 and 7 contain retail advertising pictures that are shared by all the versions pricing information that comes in two versions corresponding to two pricing zones.

35 This structure is also presented in Figure 3.

Delivering content as page store sequences

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Referring back to Figure 2, a second step involves delivering the content by the print buyer to the work center. This can be done in different ways.

5

One way is to deliver the content in separate documents, for example by delivering a separate document for each version of each part. This situation is depicted in Figure 4 for the example of the regional newspaper. In this case, the five regional versions of the newspaper are delivered as five distinct documents DOC[4], DOC[5],
10 DOC[6], DOC[7] and DOC[8], whereby each document contains four pages numbered from 1 to 4.

In this document, a page store sequence PSS[i] is a sequence of
15 consecutive pages comprising all the content elements of one given type (text, graphics or images) corresponding to a version of one single part of a printed product.

Referring to Figure 4, a first example of a page store sequence
20 PSS[6] is found in document DOC[6]. This page store sequence contains the text of the regional part of the newspaper for region region[3] stored on pages 1 to 4.

Also referring to Figure 4, a second example of a page store
25 sequence PSS[9] is found in the document DOC[9]. This document contains two pages comprising two images (picture[1], picture[2]) on two consecutive pages. The two images are the same for the two versions PZ[1] and PZ[2].

30 Referring to Figure 4, each document (DOC[1], DOC[2], ... DOC[11]) comprises exactly one page store sequence. For example, document DOC[4] contains page store sequence PSS[4].

Document layers have been known by the person skilled in the
35 art, for example in software products such as AUTOCAD™ and CorelDraw™. From version 1.5 and up, the PDF™ document format supports a feature called "optional content groups" (OCG/layers)

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that also enables to selectively store, view or print information stored in a variable number of separate layers. Each layer is a content layer in that it accommodates content elements. The concept of optional content groups can be used to store different text
5 versions of the same document in different layers or to print said document using additional inks having various spot colors.

According to a preferred embodiment of the current invention, one document is delivered per part of the printed product, each said
10 document comprising all the page store sequences corresponding to the different versions in different layers of said part.

Referring to an example shown in Figure 5, a first document DOC[1] comprises the part of a newspaper with the front and back
15 cover. According to the example this part is delivered as a document comprising three page source sequences PSS[1]-PSS[3] corresponding to the three language versions of said part, whereby said three page source sequences PSS[1]-PSS[3] are stored in three layers layer[1], layer[2] and layer[3]).

20

Also referring to the example in Figure 5, a second document DOC[2] comprises the part of a newspaper with five versions region[1]-region[5] of four pages with regional news. The five versions corresponding to five regions correspond with five distinct
25 page store sequences (PSS[4]-PSS[8]) that are stored in different content layers (layer[1] to layer [5]).

Again referring to Figure 5, a third document DOC[3] comprises a part of a newspaper with two pricing zone versions of advertising.
30 The images of the advertisement corresponds with a separate page store sequence PSS[9] stored in a layer[1], while the text of the two pricing zones corresponds with page store sequences PSS[10] and PSS[11] stored in layer[2] and layer[3] respectively. In this case the image corresponding with page store sequence PSS[9] of the
35 document is shared by the two pricing zone versions.

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The images stored in page store sequence PSS[9] in Figure 5 can be monochrome images or color images. In the latter case they can be represented in one of the colorimetric color spaces such as CIE LAB or sRGB, or in a colorant space such as CMYK (for example SWOP CMYK inks).

According to one alternative preferred embodiment the page store sequences stored in content layers are used as containers for individual colorant separations. Referring to Figure 6, a first set of page store sequences PSS[9]-PSS[12] stored in content layers layer[1] to layer[4] contain the four separations C, M, Y and K of a color image that is shared in two versions corresponding to two pricing zones, while a fifth content page store sequence PSS[13] stored in layer layer[5] contains a black (or alternatively any other color) separation representing text for a first pricing zone and a sixth page store sequence stored in content layer layer[6] contains a black (or alternatively any other color) separation representing text for a second pricing zone.

In one preferred embodiment, the content elements of all the source documents are combined into one single document that comprises all the page source sequences of the input documents stored in content layers of said single document.

Page splitting step

Referring to Figure 7 and Figure 8, a specific embodiment of the current invention involves a page splitting step in which for every page store sequence PSS[i] the content elements belonging to a given page in said given page store sequence are mapped to a page in a corresponding page layer sequence PLS[i], whereby said page in said page layer sequence corresponds with the page where said content elements are to be printed in the printed product.

This step is called "page splitting" because a continuous page sequence of pages in a page store sequence PSS[i] may be split into

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a discontinuous sequence (with blank pages and non-blank pages interleaved) in the corresponding page layer sequence PLS[i].

5 The page splitting step can be explained in more detail by means of Figures 4, 7 and 8.

Referring to Figure 4, the page source sequence PSS[9] comprises two consecutive pages corresponding to picture[1] on page 1 and picture[2] on page 3. According to the logical structure of the newspaper and referring to Figure 7, picture[1] is to be printed on the page 2 and picture[2] is to be printed on page 7 of the printed product. Therefore the page splitting step maps the content elements of page 1 in page store sequence PSS[9] onto page 2 of page layer sequence PLS[9], and maps the content elements of page 2 in page store sequence PSS[9] to page 7 in page layer sequence PLS[9]. A similar operation is done for all the content elements on all the pages of all the page store sequences.

stacking step

20

According to an embodiment of the current invention, a fourth step includes a stacking step. The stacking step involves stacking the content elements of selected layers of a page of the printed document to create a version of said page, and repeating said stacking for every page of the printed document. The stacking step is separately repeated for every version of the printed product. The result of a stacking step is a set of pages in which all the content elements correspond to a specific version for which the stacking step was executed. Referring to Figure 7, an example of a stacking step is a set of pages PAGE[1]-PAGE[8] of a regional newspaper in a specific version.

35 The stacking step preferably makes use of a versioning table, of which an example is shown in Figure 9. Such a versioning table contains a first entry indicating all the versions that are to be created of a printed product and a second entry indicating all the available page layer sequences PLS[i] and a second entry indicating

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all the available page layer sequences PLS[i]. For every entry that corresponds with a version, the table contains a flag at the corresponding page layer sequences PLS[i] that are part of said version. The version table is preferably edited using a graphic user interface that shows a matrix of which a first dimension corresponds with the versions and a second dimension with the page player sequences PLS[i].

Product to process conversion

10

Once the versions have been defined using said version table, the next steps are the approval and manufacturing steps.

Approval is based on a proof of the printed product. Preferably a separate proof is made of each version. The proof can be a soft proof or a hardcopy proof.

According to one particular embodiment, an optimal manufacturing plan is established to produce the different versions. If the variations between the different versions are relatively small, several plates can be reused over different versions.

One embodiment to establish a manufacturing plan (also called production plan) to produce the different versions is discussed below.

For plate optimization, important input information for the management system is which printing plates is required to produce all the different versions. This information can be derived from the information how many different colors (process and spot colors) are needed to produce a specific page.

This last information can be obtained by analyzing all the content during submission. In order to avoid this complexity, it is preferred in a first phase to introduce a Target Separation Configuration per PSS. This TSC indicates which separation planes are occupied by the associated content. Note that it is possible

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that the user puts pages in the PSS that still contain objects that occupy other separation planes; this should then result in a warning/error.

5 For plate usage, the TSC will be used to determine how many different separation planes (i.e., films/plates) have to be produced.

10 In order to determine whether plates can be shared across different versions, we first determine for each separation which pages can be shared. In order to determine whether a specific plate can be shared across different versions, we check whether all pages on that plate can be shared.

15 Once all versions have been defined, the Production Planner software module starts drawing up a press plan to determine how the different versions are to be produced. Preferably, this includes the order in which the different versions are to be produced. The determined press plan takes the capabilities of the available
20 presses into account. In a preferred embodiment, a target is to obtain a press plan with a small, preferably a minimal number of plate replacements. Sometimes, press cylinders can be swapped run-time. This means that, while the press is running, a particular plate can be changed on a cylinder that is currently deactivated.
25 It is preferred to take also these capabilities into account when drawing up the press plan.

Prepress

30 The prepress phase is not different from the one for non-versioned products once the production plan has been drawn up. In the prepress phase, the pages are imposed and a signature/sheet/surface/separation hierarchy is established. After the imposition, a number of well-known prepress processes take place
35 such as interpreting, rendering, screening, trapping, separation and screening. The result is a binary image per plate to be manufactured.

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The only concern now is that it is clearly indicated, preferably by the management system, which plates are shared among versions. This allows preventing that shared plates are generated again for each version in which they are needed. Note, however,
5 there might be reasons to duplicate the shared plates. One example might be that different versions are printed at different printing sites; another reason might be that the press runs are so long that additional plates are needed for additional runs.

10 Those skilled in the art will appreciate that numerous modifications and variations may be made to the embodiments disclosed above without departing from the scope of the present invention.

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[CLAIMS]

1. A method for making a digital representation of a printed product having a plurality of versions, the method comprising the steps of:
 - 5 - creating a product structure for digitally representing said printed product;
 - including a composition of said printed product out of sections in said product structure;
 - getting first input data for defining a first version out of
 - 10 said plurality of versions;
 - getting second input data for defining a second version out of said plurality of versions;
 - modifying said product structure based on said first and said second input data, thus obtaining said digital representation of
 - 15 said printed product having said plurality of versions.
2. The method according to claim 1 further comprising the step of using layers for storing data making up said first and said second version.
- 20 3. A data processing system comprising means for carrying out the steps of the method according to any one of claims 1 to 2.
4. A computer program comprising computer program code means adapted
- 25 to perform the method according to any one of claims 1 to 2 when said program is run on a computer.
5. A computer readable medium comprising program code adapted to carry out the method according to any one of claims 1 to 2 when
- 30 run on a computer.
6. The method according to any one of claims 1 to 2 further comprising the step of producing said printed product.
- 35 7. The printed product obtained by the method according to claim 6.

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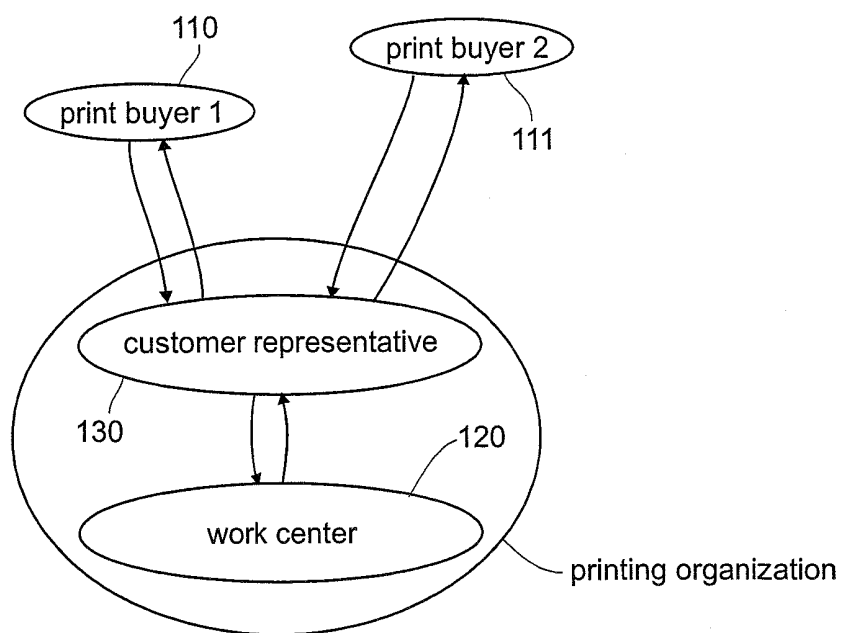


Figure 1

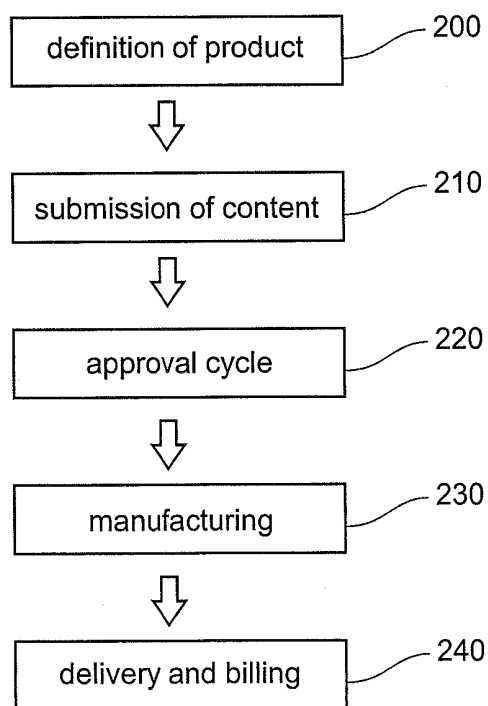


Figure 2



Figure 3

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		Page1	Page2	Page3	Page 4
DOC[1]	PSS[1]	FRONT COVER (Dutch)	BACK COVER (Dutch)		
DOC[2]	PSS[2]	FRONT COVER (French)	BACK COVER (French)		
DOC[3]	PSS[3]	FRONT COVER (German)	BACK COVER (German)		
DOC[4]	PSS[4]	regional news (region[1]) (German)	regional news (region[1]) (German)	regional news (region[1]) (German)	regional news (region[1]) (German)
DOC[5]	PSS[5]	regional news (region[2]) (French)	regional news (region[2]) (French)	regional news (region[2]) (French)	regional news (region[2]) (French)
DOC[6]	PSS[6]	regional news (region[3]) (French)	regional news (region[3]) (French)	regional news (region[3]) (French)	regional news (region[3]) (French)
DOC[7]	PSS[7]	regional news (region[4]) (Dutch)	regional news (region[4]) (Dutch)	regional news (region[4]) (Dutch)	regional news (region[4]) (Dutch)
DOC[8]	PSS[8]	regional news (region[5]) (Dutch)	regional news (region[5]) (Dutch)	regional news (region[5]) (Dutch)	regional news (region[5]) (Dutch)
DOC[9]	PSS[9]	retail advertizing (picture[1])	retail advertizing (picture[2])		
DOC[10]	PSS[10]	retail advertizing (PZ[1])	retail advertizing (PZ[1])		
DOC[11]	PSS[11]	retail advertizing (PZ[2])	retail advertizing (PZ[2])		

Figure 4

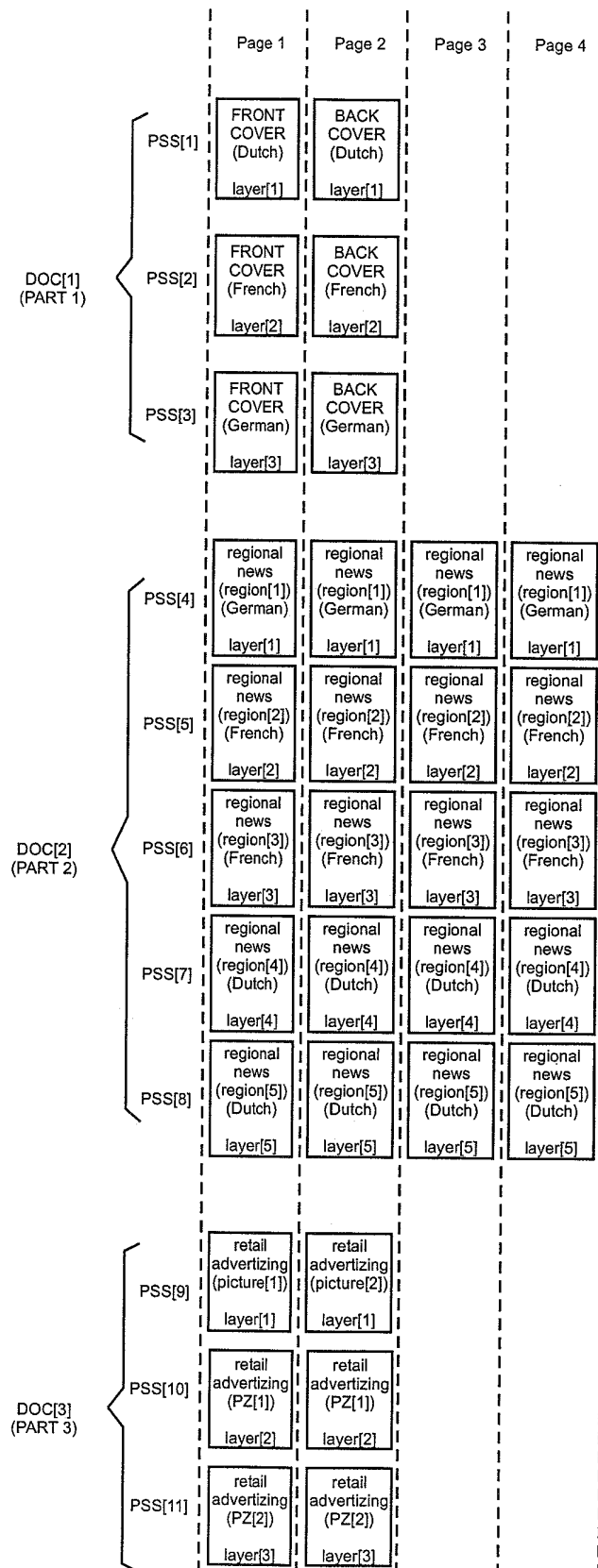


Figure 5

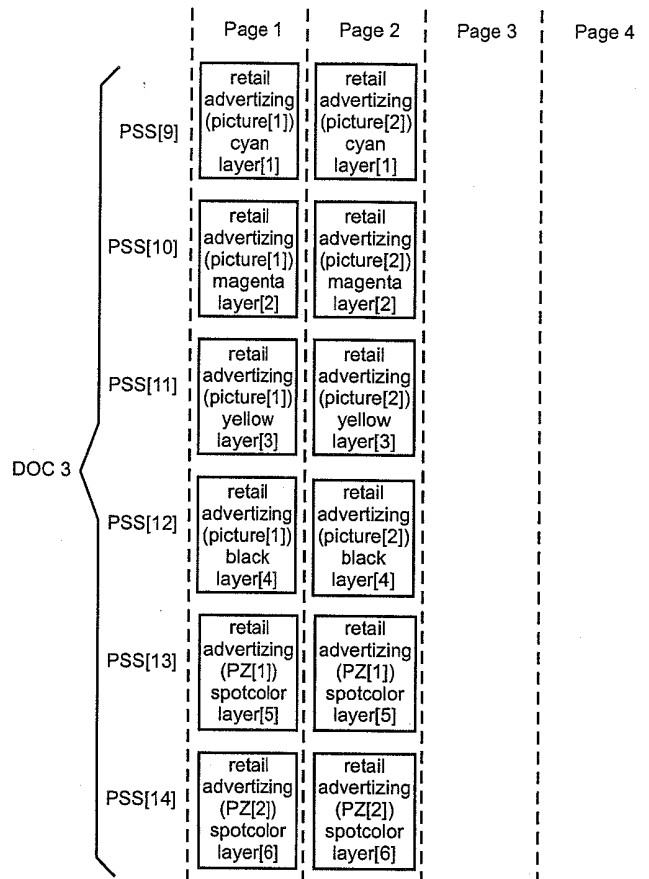


Figure 6

	Page 1	Page 2	Page 3	Page 4	Page 5	Page 6	Page 7	Page 8
PLS[1]	FRONT COVER (Dutch) #1							BACK COVER (Dutch) #8
PLS[2]	FRONT COVER (French) #1							BACK COVER (French) #8
PLS[3]	FRONT COVER (German) #1							BACK COVER (German) #8
PLS[4]			regional news (region[1]) (German) #3	regional news (region[1]) (German) #4	regional news (region[1]) (German) #5	regional news (region[1]) (German) #6		
PLS[5]			regional news (region[2]) (French) #3	regional news (region[2]) (French) #4	regional news (region[2]) (French) #5	regional news (region[2]) (French) #6		
PLS[6]			regional news (region[3]) (French) #3	regional news (region[3]) (French) #4	regional news (region[3]) (French) #5	regional news (region[3]) (French) #6		
PLS[7]			regional news (region[4]) (Dutch) #3	regional news (region[4]) (Dutch) #4	regional news (region[4]) (Dutch) #5	regional news (region 4) (Dutch) #6		
PLS[8]			regional news (region[5]) (Dutch) #3	regional news (region[5]) (Dutch) #4	regional news (region[5]) (Dutch) #5	regional news (region[5]) (Dutch) #6		
PLS[9]		retail advertising (picture[1]) #2					retail advertising (picture[2]) #7	
PLS[10]		retail advertising (PZ[1]) #2					retail advertising (PZ[1]) #7	
PLS[11]		retail advertising (PZ[2]) #2					retail advertising (PZ[2]) #7	

Figure 8

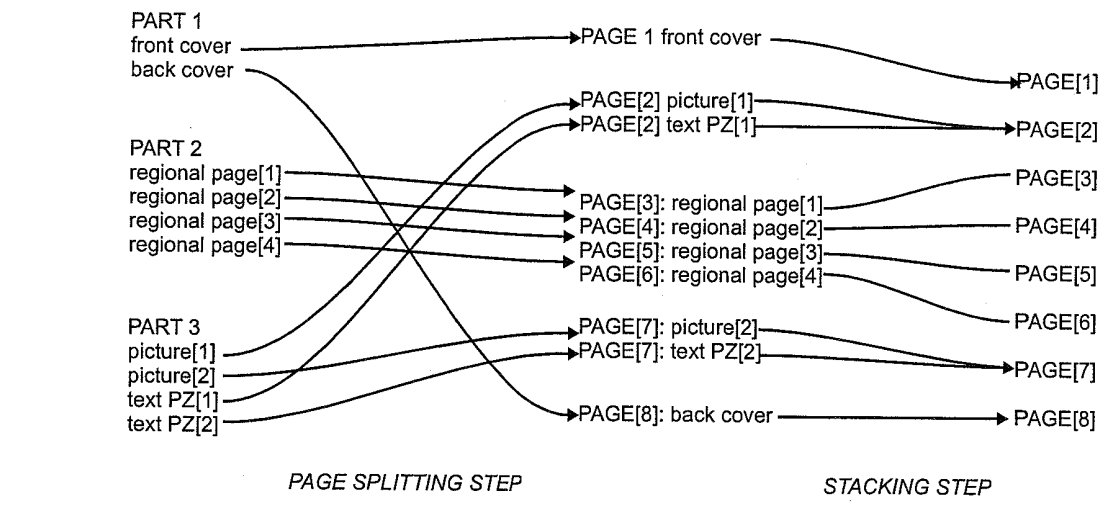


Figure 7

	version[1]	version[2]	version[3]	version[4]	version[5]	version[6]	version[7]	version[8]	version[9]
	region[1]	region[2]		region[3]		region[4]		region[5]	
	PZ[2]	PZ[1]	PZ[2]	PZ[1]	PZ[2]	PZ[1]	PZ[2]	PZ[1]	PZ[2]
PART 1	PLS[1]					x	x	x	x
	PLS[2]		x		x				
	PLS[3]	x							
PART 2	PLS[4]	x							
	PLS[5]		x						
	PLS[6]			x	x				
PART 3	PLS[7]					x	x		
	PLS[8]							x	x
	PLS[9]	x	x	x	x	x	x	x	x
	PLS[10]		x		x	x		x	
	PLS[11]	x		x		x	x		x

Figure 9