MICROPUBLISHING'S NEW OPPORTUNITY:

WORD PROCESSING TO COM CAN WORK

IN THE OFFICE OF THE FUTURE

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ABSTRACT

Micropublishing can be defined as the production of
reference material on microfilm. Because of the
mechanics of creating the original pages, it has
usually implied that this production involved
document filming. Also, word processing equipment
is gaining rapid acceptance and is producing
thousands of pages that must or should ultimately
be put on microfilm - that is, micropublished.
This paper discusses how COM can be used for this
micropublishing by creating a bridge between the
word processing equipment and COM. The result is
a simple cost-effective system useful in the
office of the future.

LA NOUVELLE OPORTUNITE DE LA "MICRO-PUBLICATION"

DE LA REPRODUCTION DES MOTS A COM

POSSIBILITE DU FUTUR

RESUME

La "micro-publication" peut être définit comme étant
la reproduction de matériaux de référence sur le micro-
film. A cause de la complexité dans la création de
pages originales, cette reproduction en nous donnant
un relevé de document devient indispensable. Puisque
la méthode de relevé de document (sur film) devient de
plus en plus accepté, la "micro-publication" est la
voie du futur. Cette étude discute de la possibilité
d'utiliser la micro-publication ou "COM" en conjonction
avec les présentes méthodes de relevé ou reproduction
de document. Le résultat est donc un système simple
et économique pour les bureaux du futur.

WORD PROCESSING TO COM

INTRODUCTION AND BACKGROUND

Word Processing

Word Processing as it is known today has found general
acceptance only in the last few years, and has been the hot-button of
many office managers who are trying to stay up with the times and in
many cases increase office productivity. For the purposes of this
paper I would like to define word processing to be "the creation of
reference material in a cost-effective way using current technology".
In fact, that definition could be used to cover what has been
happening in the office at the steno level for many years. The
production of letters using old mechanical typewriters through to
the use of MTST equipment and now the newly dubbed word processing
intelligent systems all really fit into this definition. The means
of creation has changed, but the end product has not. The significance
is that the price/performance improvements in electronic components
(notably logic and storage chips) of the last few years has meant that
a very strong case can be made for the installation of today's
sophisticated word processing equipment. The price of the equipment
keeps coming down while its capabilities are going up; at the same
time, we all know what the cost of the people using the equipment is
doing. Therefore, the efficiencies of the automated approach are in
many cases too dramatic to resist. The real point that I'm making
is that word processing is not a passing phase; it has been with us
a long time, and we are finally using a mechanism that allows us to
open other avenues of office automation.

Another point to recognize is that the output of word processing
is not just on paper; it is also on some magnetic storage media,
readable by electronic equipment. The most common form today is floppy
disk, or diskettes. It is the use of the information in this form that
opens up the opportunity that we are addressing.

I should mention a caveat at this point; all is not as simple
the previous statement seems. First of all, today's word processing
marketplace is yesterday's terminal marketplace. Is there any office
manager out there who can actually evaluate all the word processing
suppliers? As you know, there are many of them, and they all have
different bells and whistles; but what is worse is that they are all
based on different electronic technologies, notably the storage media.
Floppy is simply a generic name to reference a type of storage media -
it in no way implies that a floppy is a floppy is a floppy. On the
contrary, most of them are written in different formats, and the
machine to read them must be intelligent enough, either in its
programmed hardware or its software, to be able to read that specific
format. There does not seem to be any attempt at standardization
amongst the suppliers, and in some cases a given supplier may have
floppies of different format within his own product line.

Micrographics and COM

Micrographics has of course been around as long as word processing has, when taken as I defined it above. The two forms of micrographics – document filming and COM – have both successfully addressed specific markets although in both cases the end product is essentially the same (ignoring the capability differences, the end product is in both cases microfilm at a certain reduction ratio, with all its ensuing benefits). COM has been accepted so well because, in general, it is easier and cheaper to produce than document filming once the information is in computer form.

The term micropublishing has somewhat the same phenomenon about it as word processing, in that it is a hot-button that has been used to any degree only in the last two years; but it really applies to something that we have all been doing for a long time. Let me define micropublishing then to be "the production of reference material on microfilm". This definition in no way restricts micropublishing to be document filming; the fact that it has been the default in the past is simply that the applications which require micropublishing have had their information in document form, not computer form. And this has been true regardless of how the document was created – whether it was on an old mechanical typewriter, or a new zippy word processing system. The fact remains that a document is produced on hard copy, extra copies are made, then filed by expensive hands, then retrieved by equally expensive hands, then moved (again by those same hands) to a source document filming laboratory, and then finally put on microfilm.

Summary

The situation is in essence quite simple: hundreds, perhaps thousands, of word processing systems currently contain thousands (perhaps millions) of pages of letters and reports in computer readable form. Many of these pages are destined to be produced on microfilm, but before that can be done they have to be processed using the expensive and rather awkward hard copy route. At the same time, COM technology is widespread, accepted, stable, and capable of doing more. But there has been little effort to create a bridge between the word processing information and the COM input requirements. The office of the future needs to be able to take its word processing floppies and input this information to COM in an easy, inexpensive way. Datacrown Inc., a Computer Service company who also specializes in COM services, is addressing this need in a way that will offer a cost-effective solution to the office manager.

WORD PROCESSING TO COM

THE NEED

Both word processing and micropublishing in the past have offered users excellent benefits, notably one of reduced costs. Each one of them, operating in their own environment, is readily accepted for what it offers. The need that I'm suggesting is that these benefits can be dramatically increased by the compatible use of the two technologies. The objectives that should be set for this compatible use are:

i)   reduce the cost of micropublishing;

ii) reduce the chance of omission or error in cumbersome office procedures which are currently necessitated by handling hard copy paper.

Based on those objectives, we can define who are logical candidates for this new use of micropublishing. It would be easy to say that anybody who can justify a word processing system is a potential user of this product. But the need for the retention and retrieval of the data via microfilm also has to be demonstrated. Therefore, I would like to take a slightly different approach and nominate two types of candidates:

i)   Type 1 Converts - these are companies who would convert from document filming to COM. Their volume of original pages is large enough to justify retention on microfilm. These companies can and should be justifying word processing systems; they could save money and trouble by retaining their records on microfilm à la COM as opposed to document filming.

ii) Type 2 Converts - these are companies who would convert from paper to microfilm. They currently produce voluminous reports on paper for distribution to end users. This would apply to either a small report with a large number of copies, or a large report with a small number of copies - in other words, a typical microfilm application. But the user has been using hard copy for one reason or another. I'm suggesting that he is an excellent candidate to install a word processing system for the benefits it provides, and convince his end users of the benefits of receiving the report on microfilm instead of hard copy.

A specific prospect of the second type has estimated a saving of $2,500 for the average manual that they currently produce, and $600 for each revision of these manuals. It doesn't take many different manuals, each with similar cost savings, to justify the

THE NEED, cont'd.

installation of some word processing equipment and the use of COM
to produce the end product. I should also mention here, although
this paper does not specifically deal with it, some users may be
interested in retaining their text on large mainframe computer
systems (using, for example, IBM's Advanced Text Management System),
whereby creating a tape for use on COM is a relatively trivial task.
It is really a question of cost for the office manager who is
considering automated text editing and creation, and word processing
systems usually win.

THE PRODUCT

Basic Requirements

I will now describe exactly what is involved in producing the
end product microfilm from word processing equipment. A specific
manufacturer is named only to illustrate the capabilities that exist
today. We, at Datacrown Inc., will be doing more work in this area
in the future, and it is safe to assume that the product will be
available using numerous manufacturers' products.

There are three specific steps involved. This is actually more
awkward than we would like it to be, and we will be working in the
future to eliminate some of that awkwardness (and cost; I will be
the first to admit that the extra steps listed below add to the cost
of the end product. Nevertheless, there are many cases where it can
still be produced, using this mechanism, cheaper than today's
alternatives.) The three steps are:

i) Getting the word processing data onto a media that can be
    input into our COM recorders.

    Since COM recorders cannot read data from floppy disks, this
    must by default be magnetic tape. And not too many word
    processing systems can have a tape drive attached to them.
    Even for those that can, this adds unjustified expense to
    the system. The logical answer is to install a data
    communications adapter on the word processing equipment.
    Specifically, AES Limited offers their word processing
    equipment with a 2780 communications adapter attached.
    Diskettes created on any AES word processor utilize a
    separate file for each data page, and each file can be
    transmitted over communications lines to a mainframe computer.
    Datacrown utilizes numerous large IBM mainframes for our
    computer services. Our COM services are within forty feet

Basic Requirements, cont'd.

of these computers, so that we can accommodate transmission from the above-noted word processing systems to our mainframes. Once it is there, the data can be written to magnetic tape very easily.

ii) Translating the data on the mainframe into a character configuration that will produce the desired results on the COM recorders.

This step is only needed when special characters are involved in the text of the material, and this is dependent on the capabilities of the COM recorder. You must make sure that the character configurations going into the recorder are exactly as the recorder is expecting them; if the original word processing system cannot accomplish this, a program is necessary to run on the mainframe to produce the proper character configurations. This is because the word processing equipment will transmit a special character such as a French "è", as one hex code (for example, e is X'85', but è may be X'B5'). Our COM recorders must have three characters in a string to produce this one final character: è needs e(X'85'), backspace (X'39'),\ (X'79'). The program that runs on the mainframe must expand the input to create these composite characters. We have written this program and it produces the desired results for the characters that our COM recorders support (which by the way is the full ALA character set).

iii) Production of microfilm. This is simply as it is today, with magnetic tape input and microfilm or microfiche as output; microfiche of course is the preferred alternative.

Additional Requirements

If COM is going to seriously address this potential market of micropublishing, then it needs more than the ability to read data in the proper format. The end product microfilm has to be produced with sufficient quality and flexibility that the end user is satisfied. Specifically, I believe the following features are necessary on COM recorders:

i) Character Generation: Micropublishing typically requires frequent reference and a fair bit of reading of text. The easy readability of the microfilm is a definite asset to the end user. High resolution and eye-pleasing characters

Additional Requirements, cont'd.

are therefore essential. This can be accomplished on a
number of existing COM recorders, for example, using a
stroke generator. The user may someday demand something
as good as photographic type-setting quality on his
microfilm, but at the moment that cannot be provided at
reasonable cost.

ii) Special Characters: Most reports to be micropublished
require numerous special characters. French accents
are frequently a must, and library applications will
require numerous foreign language characters and other
special characters such as sub-scripting or super-scripting.

iii) Character Fonts & Sizes: Similar to the requirement for
special characters, most micropublishing applications
require a selection of character fonts and sizes. Some
COM recorders can do simple things such as: italics,
bold face, multiple size characters.

SUMMARY

The foregoing describes how information created on today's
word processing systems can be reproduced on to microfilm using
COM. The cost savings can be substantial, and the additional
benefit of enhancing office procedures is very real. Very little
work has been done in establishing the smooth interface between the
word processing systems and COM. This paper describes one way it
can be done using existing equipment and technology. It is the
author's belief that this particular aspect of micropublishing will
be developed and enhanced in the near future.