



R & D

THE PROCESS OF BRINGING
NEW PRODUCTS TO MARKET

BY

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WHY SELL A WIDE RANGE?

MARKET FRAGMENTATION

10 Years ago 2 products held 70% of the market, now HP alone has over 25 products for laser printers sold in the last 5 years, and a decreasing market share.

OFFER A COMPLETE SERVICE

Reduce need to part source OEM.

BETTER MARGINS

Allows you to set the price, not your customer.

INCREASE AVAILABLE MARKET

The more you make the more potential customers you have.

REDUCE COMPETITION



AIMS AND OBJECTIVES

To produce a remanufactured cartridge that is practically indistinguishable from the OEM in terms of print quality, page life and reliability.

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WHY DO YOU NEED A STRUCTURED APPROACH?

Your customer will judge you on the quality of your weakest product – so don't have one.

This means all your product range must meet the same standards, so everything must go through the same R & D process.

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WHICH CARTRIDGE?

All the following need a positive response before allocating development time and resource.

Availability of empties.

Availability of Components.

Availability of printer.

Is it economically viable?

Is their customer demand?



STAGES OF THE DEVELOPMENT PROCESS

- 1 IS IT ECONOMIC?
- 2 BENCHMARKING THE OEM.
- 3 EMPTY CARTRIDGE ANALYSIS.
- 4 COMPONENT EVALUATION.
- 5 PACKAGING.
- 6 ONGOING DEVELOPMENT / QA.



ECONOMIC?

OUR MAGIC FORMULA

BUILD COST + OVERHEAD < 0.7 X OEM TRADE PRICE

**BUILD COST = EMPTY COST + COMPONENTS +
DIRECT LABOUR + VARIANCE (5 -10%)**

**OVERHEADS = EVERYTHING ELSE (RENT, RATES,
INDIRECT LABOUR, TELEPHONE, SERVICES,
MARKETING ETC.)**

FOR LASERXCHANGE OPERATION:-

BUILD COST + OVERHEAD = BUILD COST X 1.56

EXAMPLE :-

HP 4500 DRUM UNIT

EMPTY CARTRIDGE	= £ 4.00
DRUM	= £20.00
CHIP	= £17.00
PACKING	= £ 1.50
LABOUR	= £ 5.00
VARIANCE	= £ 4.75
TOTAL	= <u>£52.25</u>
	x 1.56 = £81.51

DISTRIBUTOR PRICE = £47.51 x 0.7 = £33.26

CONCLUSSION: It is not worth remanufacturing HP 4500 Drum unit, at least until drum and chip can be bought for £8.69 or the OEM trade price exceeds £116.44.



THE BOTTOM LINE

IT COSTS £3,000 TO £6,000 TO DEVELOP A PRODUCT, DEPENDING ON PAGELIFE AND PRINTER COST.

IF YOU HAVE AN ESTIMATE OF THE NUMBER OF CARTRIDGES YOU EXPECT TO SELL EACH MONTH AND YOUR SELLING PRICE, THEN A SIMPLE CALCULATION WILL GIVE PAYBACK TIME.

IF THE VOLUME DOES NOT JUSTIFY THE INVESTMENT, OUTSOURCE.

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BENCHMARK 3 OEM CARTRIDGES

PAGE LIFE

FULL CARTRIDGE LIFE

SOLID DENSITY

SHADED DENSITY

COLOUR

ADHESION TO VARIOUS WEIGHT PAPERS

GHOSTING

OFFSET

DUPLEXING

PRINT AND PHOTO IMAGE TESTS

CLEANLINESS OF FUSER

HUMIDITY SENSITIVITY

WEIGHT OF TONER FILL

WEIGHT OF WASTE TONER (TRANSFER EFFICIENCY)

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ANALYSIS OF EMPTY CARTRIDGES

PRINT TEST TO FIND % OF “GOOD” CARTRIDGES

FIND REASONS FOR FAILED CARTRIDGES

WEIGH A LARGE NUMBER OF EMPTY CARTRIDGES

WEIGH WASTE TONER

COMPLETELY EMPTY MANY CARTRIDGES TO
ASSERTAIN EMPTY WEGHT

HOW DIRTY ARE RETURNED CARTRIDGES?

IS THERE A PATTERN TO BROKEN CARTRIDGES

LOOK FOR USERS COMMENTS WRITTEN ON BOX

Tip:

We insist that all cartridges (must be virgin) are returned in their original packing, this gives more reusable drums and less scratched and broken cartridges.



USE OEM DRUM?

USED OEM DRUMS IN GOOD CONDITION, WILL GIVE SUPERIOR RESULTS TO A REPLACEMENT DRUM.

CHANGE DRUM AUTOMATICALLY IF CARTRIDGE PAGE LIFE SPECIFICATION IS GREATER THAN 6000 (A4)

CHANGE DRUM IF THE AVERAGE DRUM-YEILD ON EMPTY CARTRIDGES IS LESS THAN 50%

SCRAPER BLADE FAILURES INCREASE WITH REPLACEMENT DRUMS THIS CAN OFFSET THE REDUCTION IN DRUM MARKS

Tip:

We use **virgin** cartridges only. We believe this is the most economical and ensures the most reliable product performance



THE DEVELOPMENT

PROCURE ALL AVAILABLE TONER, DRUMS AND COMPONENTS.

GET MANUFACTURERS NAMES FOR ABOVE WHERE POSSIBLE OR A WRITTEN GUARANTEE THAT THE SUPPLIER WILL NOTIFY YOU IF THEY CHANGE THEIR SUPPLIER OR SPECIFICATION.

IF POSSIBLE BUY TONER WHERE SUPPLIER WILL GIVE YOU THE ASTM PAGE LIFE AND DENSITY MEASUREMENTS.

USE THE DATA FROM EMPTY FAILURE ANALYSIS TO DECIDE IF SCRAPERS, PCR.S, CATCHER BLADES, MAG ROLLERS ETC., NEED CHANGING EACH TIME.

TEST ALL COMBINATIONS OF DRUM AND TONER AND CHOOSE BEST COMBINATIONS.

DUAL SOURCE SUPPLIES WHERE POSSIBLE. DO OTHER TESTS (See OEM benchmark) except full page-life test.) CHOOSE BEST COMBINATIONS.

RUN CHOSEN COMBINATIONS FOR THEIR FULL LIFE AT 5%



PICK YOUR PREFERRED CARTRIDGE COMBINATION
(PRICE OF COMPONENTS AND PREFERRED
SOURCES)

TEST FULLY 2 MORE CARTRIDGES.

IF ALL THREE CARTRIDGES PERFORM WELL, MAKE
AND KEEP A MASTER CARTRIDGE (WELL SEALED).

You will have a supplier quality issue or test machine
problem in the next year!

THEN PROCEED TO DEVELOP PACKAGING.

SAFEST PACKING IS THE SAME AS THE OEM.

DROP TEST YOUR FINISHED PRODUCT FROM 1
METRE; ALL SIDES ALL EDGES AND ALL CORNERS.

Tip:

Folded cardboard inserts will rarely pass the drop test.

Tip: Buy your empties in their original packing.



ONGOING DEVELOPMENT

ONCE THE CARTRIDGE IS IN
PRODUCTION

Fault analysis.

QA components on a regular basis.

Look for variations in OEM empties.

Regular checks of production cartridges
against master cartridges and OEM.



SOME THOUGHTS

IT IS NOT NECESSARY TO SELL MORE
THAN ONE GRADE OF CARTRIDGE.
THE OEM DON'T.
BY DOING SO YOU INFER THAT ONE OF
YOUR PRODUCTS IS SUBSTANDARD.

YOUR QUALITY IMAGE IS ONLY AS GOOD
AS THE QUALITY OF THE LAST PRODUCT
YOU LAUNCHED.

A BAD QUALITY PRODUCT REFLECTS ON
THE WHOLE INDUSTRY.

YOUR'E MAJOR COMPETITOR IS THE
OEM, THEY STILL HAVE MORE THAN 75%
OF THE MARKET.

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FINAL THOUGHT

OoOoo

IF YOU HAVE NOT GOT TIME TO
DEVELOP A CARTRIDGE
PROPERLY. OUTSOURCE IT FROM
A REPUTABLE SUPPLIER.

ooOoo

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