



THE ROLE OF PRODUCT-IDENTITY IN END-OF-LIFE DECISION MAKING

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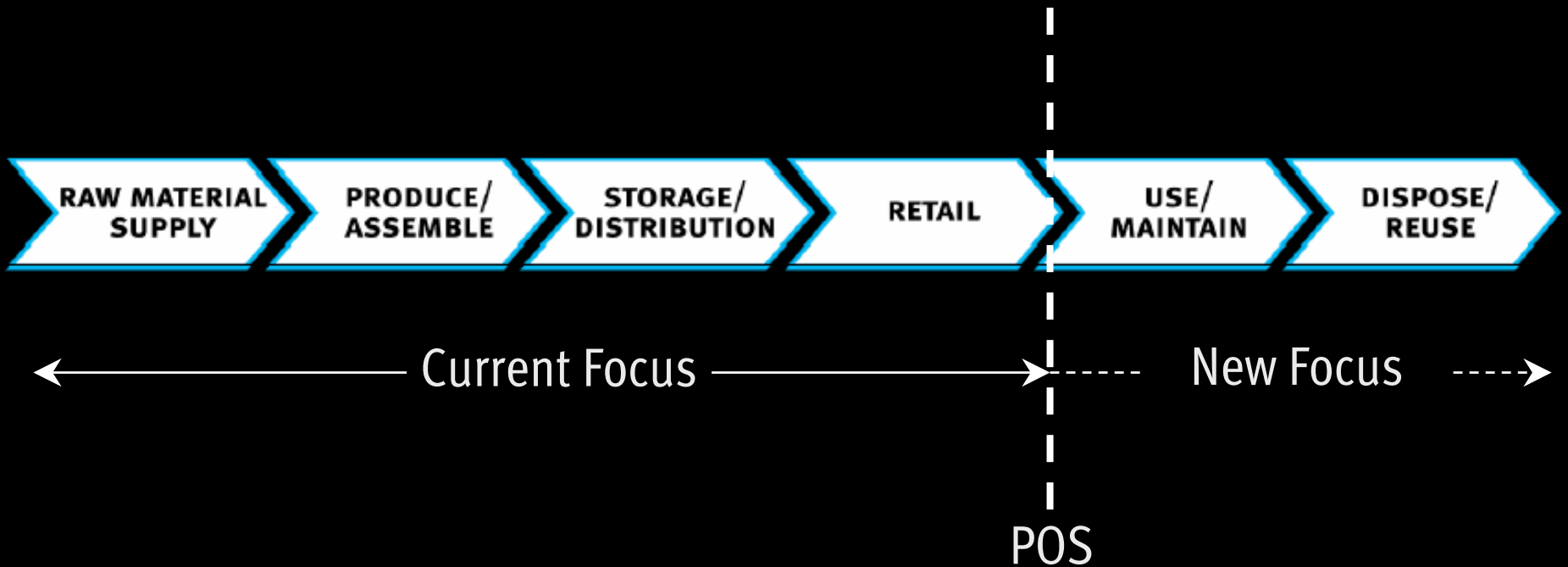
AUTO-ID CENTRE, CAMBRIDGE, UK

25TH JUNE 2003



PURPOSE

Extending the scope of Auto-ID beyond the Point-of-Sale (POS)





INTRODUCTION

What is End-of-Life (EOL) Management?

“Those activities required to retire a product after the user discards it after its useful life.”

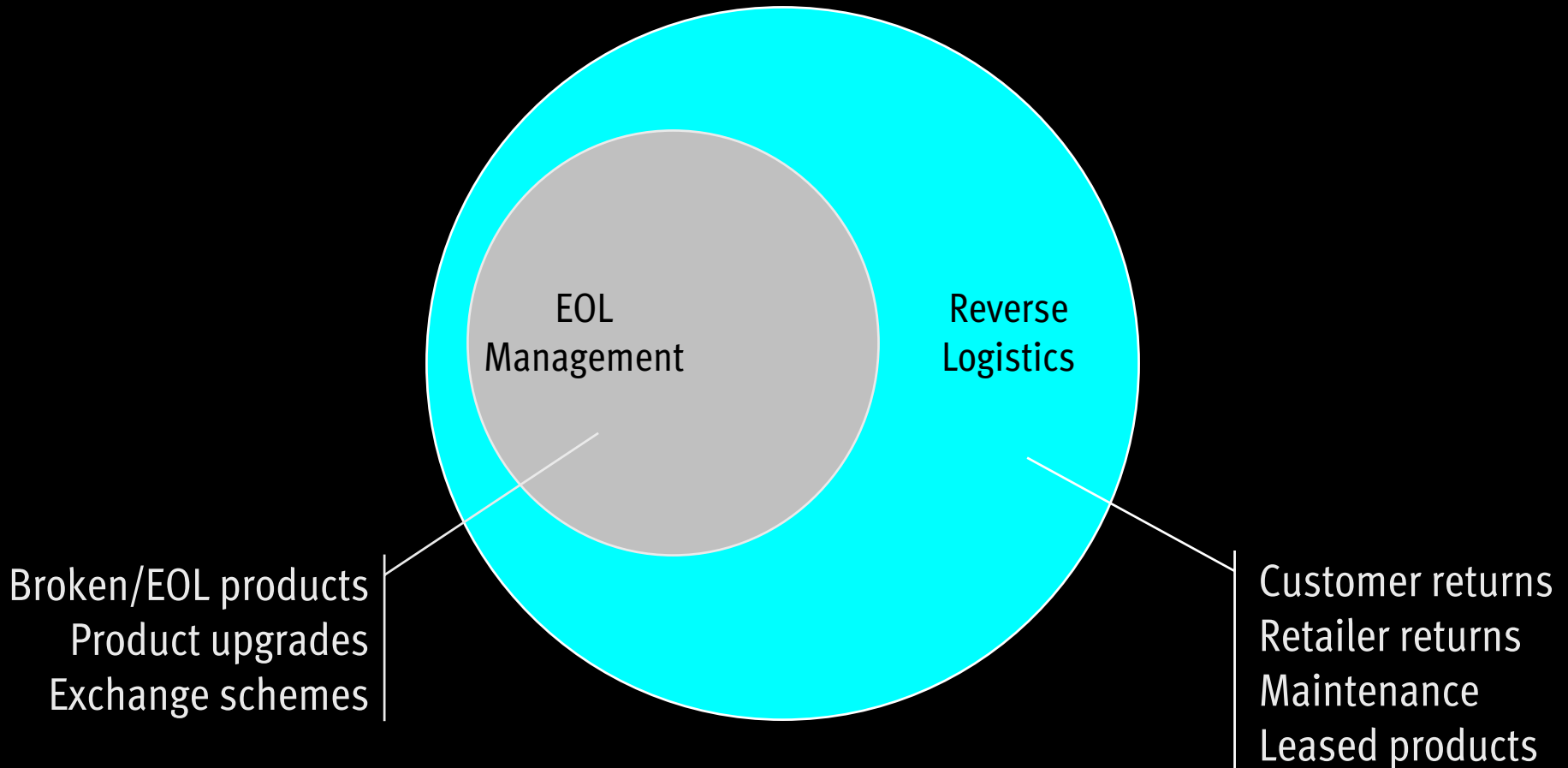
Why End-of-Life Management?

- Government Regulations
- Financial Motives
- New Marketing Opportunities



INTRODUCTION

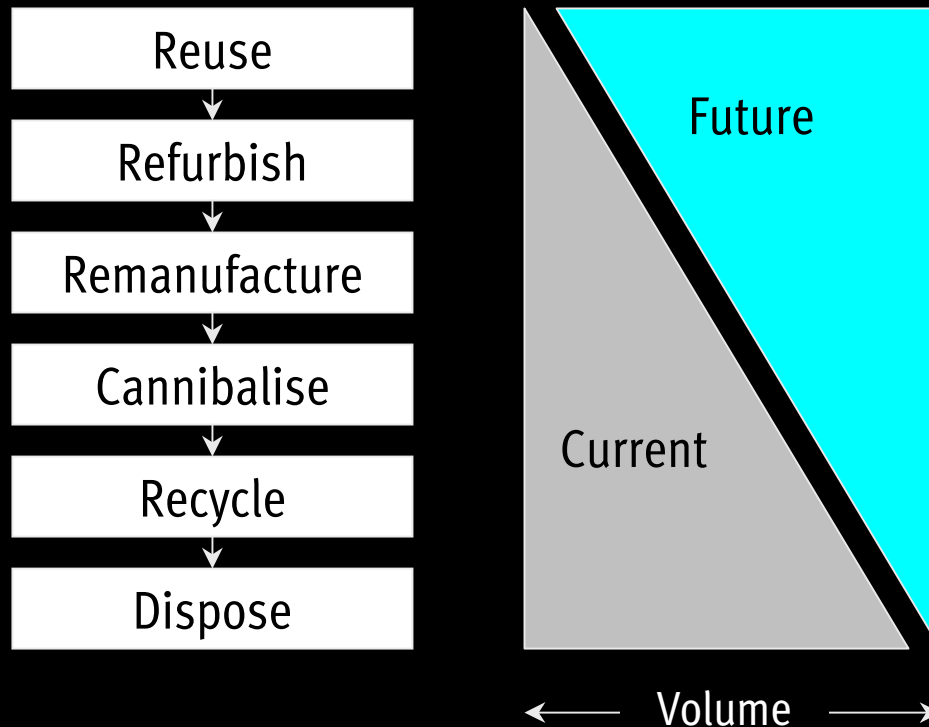
Reverse Logistics or End-of-Life Management?





PRODUCT RECOVERY OPTIONS

Objective: Maximisation of product recovery level

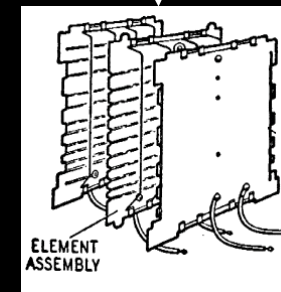
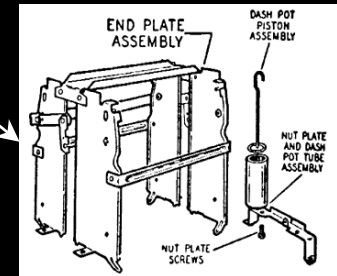
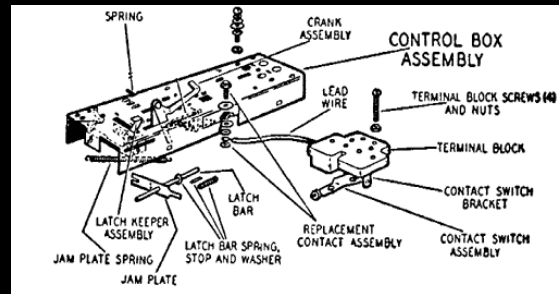
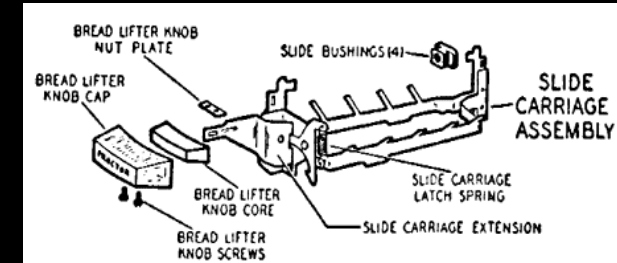
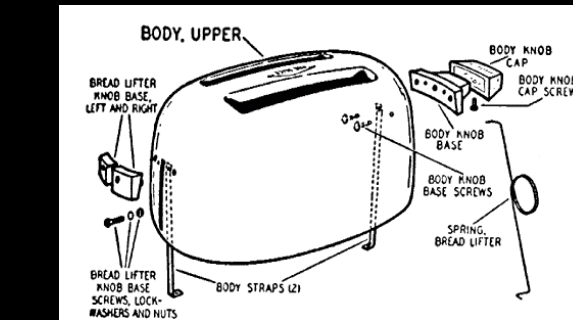




INFORMATION REQUIREMENTS - TOASTER EXAMPLE

EOL Decisions

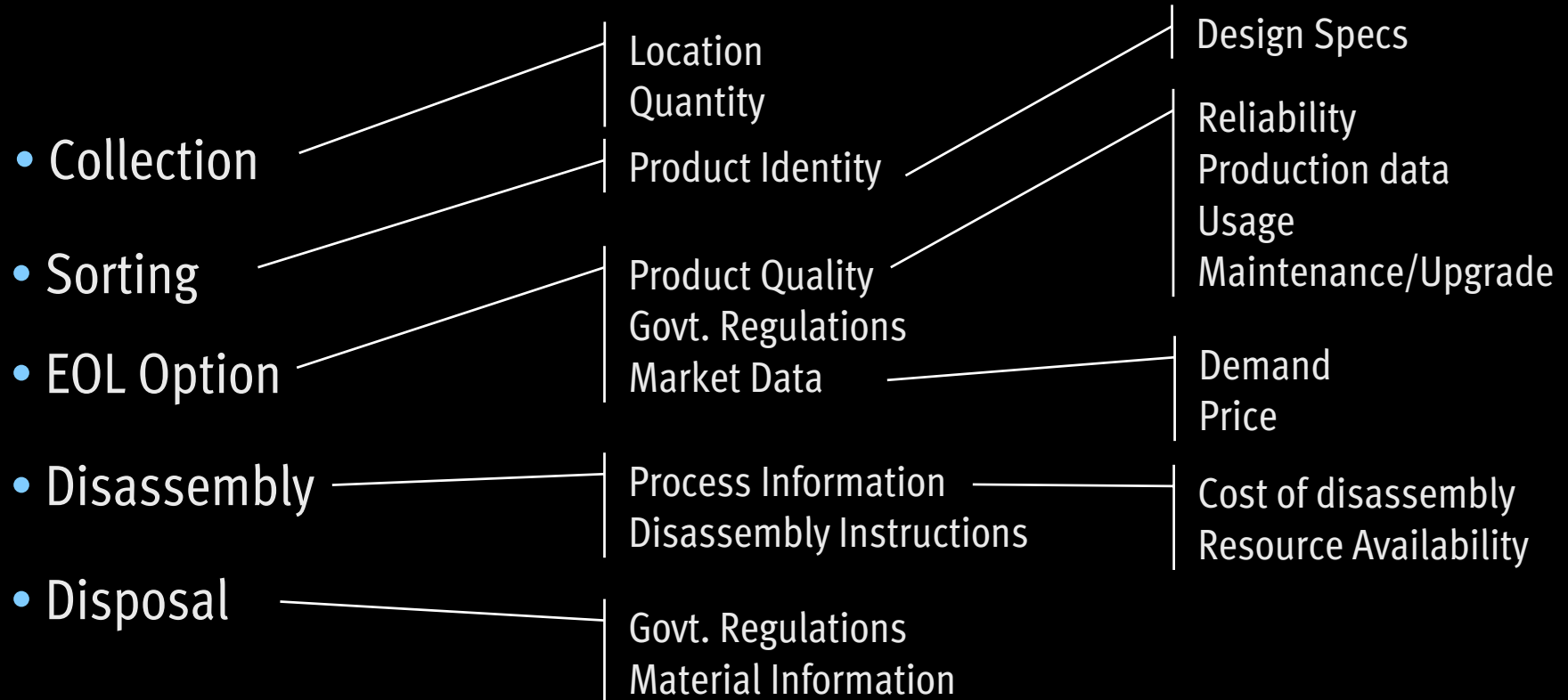
- Collection
- Sorting
- EOL Option
- Disassembly
- Disposal





INFORMATION REQUIREMENTS - TOASTER EXAMPLE

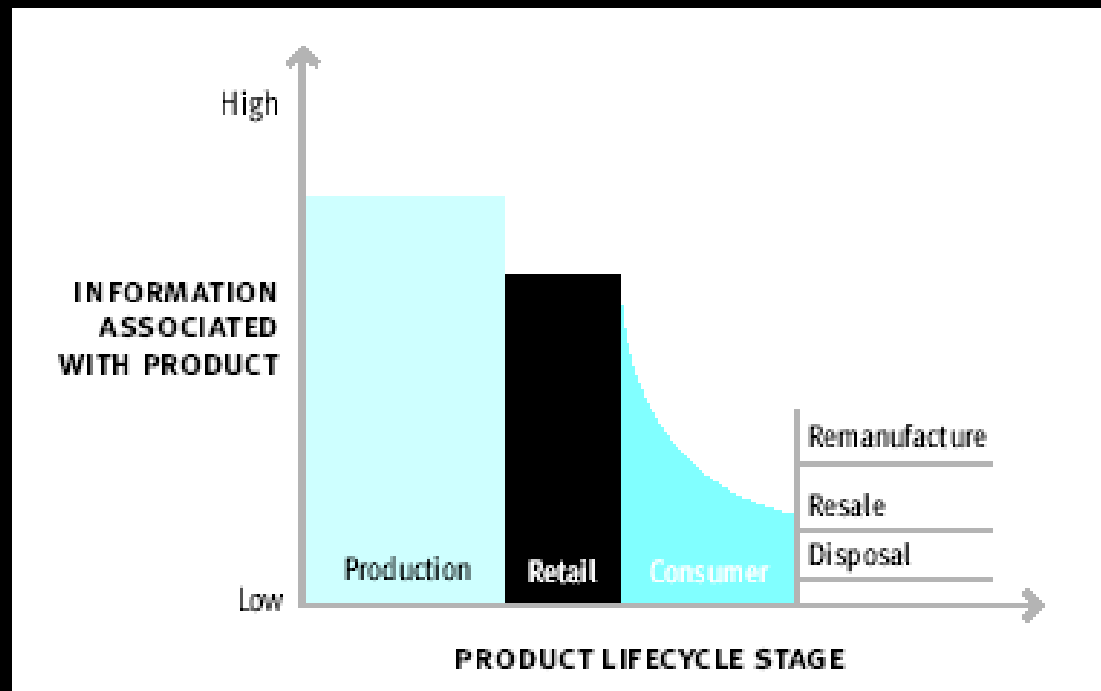
EOL Decisions





THE PROBLEM

EOL decisions depend on product information collected across its lifecycle, where-as it is seen that information regarding the product is typically lost after the point-of-sale.



Schematic plot of product information loss (source: Thomas et. al., IEEE 1999)



POTENTIAL CONSEQUENCES OF INFORMATION LOSS

- Difficulties in product identification - leads to inefficient sorting and recovery decisions.
- Insufficient material composition information available to recycler - makes it difficult to dispose according to legal requirements.
- Insufficient disassembly information - leads to inefficient manual disassembly.
- Inaccurate estimate of residual life and value of components - leads to disposal of re-usable components, which represents loss of potential revenues.

Source for REVENUE → Source for COST



LIFECYCLE INFORMATION SYSTEMS

Lifecycle Information Systems (LIS) are designed to support management of data associated with products throughout their lifecycle.

Requirements of LIS

- Ability to identify products uniquely .
- Ability to provide relevant identity information.
- Ability to update product information throughout its lifecycle.
- Ability to communicate product information to necessary supply chain partners.
- Ability to provide process instructions.
- Ability to provide decision support.



EXISTING LIFECYCLE INFORMATION SYSTEMS

Characteristics

- Unique identification.
- Classifies product data into “static” and “dynamic” classes.
- Provides design & disassembly Information.
- Monitors & records essential lifecycle performance parameters.
- Provides decision support.

Shortcomings

- Mostly designed for use by a particular company - no standards for unique identification and data communication.
- Fails to capture the dynamic nature of “static” data.
- Costly systems which inhibits its use in ubiquitous products.



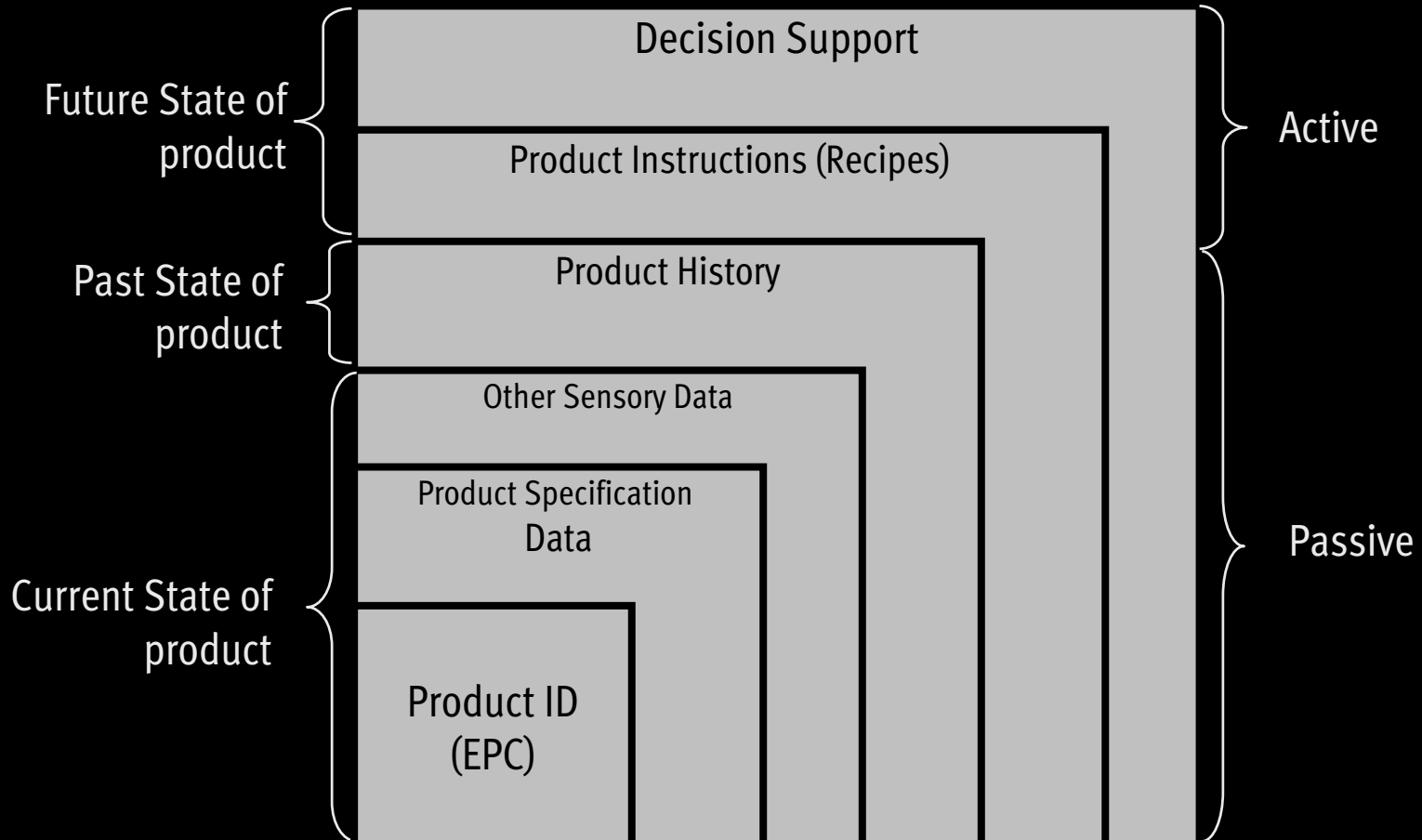
ROLE OF AUTO-ID

Auto-ID provides:

- A standard method of collecting, storing and communicating information regarding products at unique item level throughout its lifecycle.
- The ability to retrieve this information in a standardized format.
- Cheap systems enabling its use in ubiquitous products.

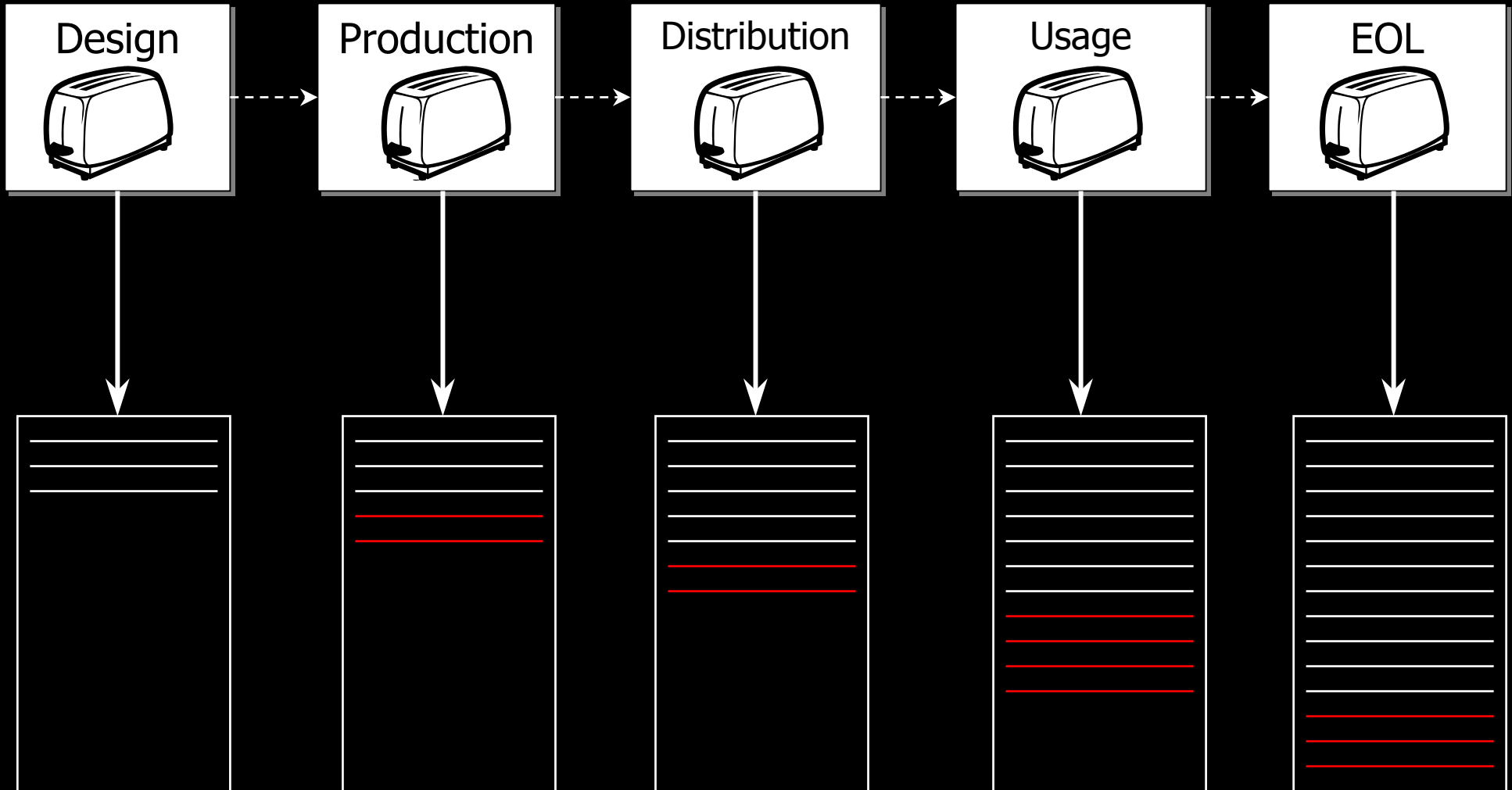


AUTO-ID ENABLED PRODUCT INFORMATION MODEL





AUTO-ID ENABLED LIFECYCLE INFORMATION SYSTEMS

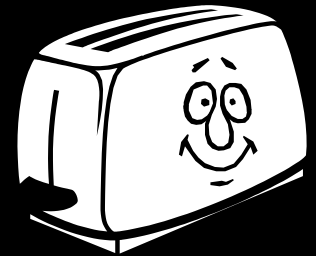




ADVANTAGES

- Better informed EOL decisions.
- Flexibility to adapt according to requirements imposed by different products.
- Facilitates automation of product recovery processes resulting in higher cost-efficiency.
- Feedback on lifecycle performance resulting in better product and process designs.

Hi! I'm Mike Toaster. I'm one year old and have been used very little. So please don't throw me away!!





NEXT STEPS

- Research on existing Product Information Models (STEP, EXPRESS, etc.) and ways to integrate them with PML.
- Develop cost-benefit models for different product categories.
- Investigate implementation issues related to lifecycle information management (privacy, security, etc.).
- Integration of Auto-ID enabled lifecycle data into existing PLM Solutions (for e.g., mySAP PLM™).



THE END

- Thank you for your attention!
- More details on this in white paper CAM-AUTOID-WH-017
- or email: aknp2@eng.cam.ac.uk