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Introduction: Basic System Life Cycle

introduction
from conception to disposal

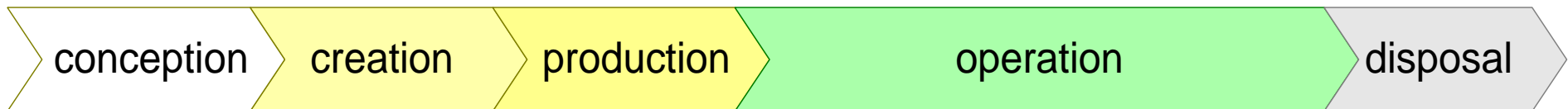
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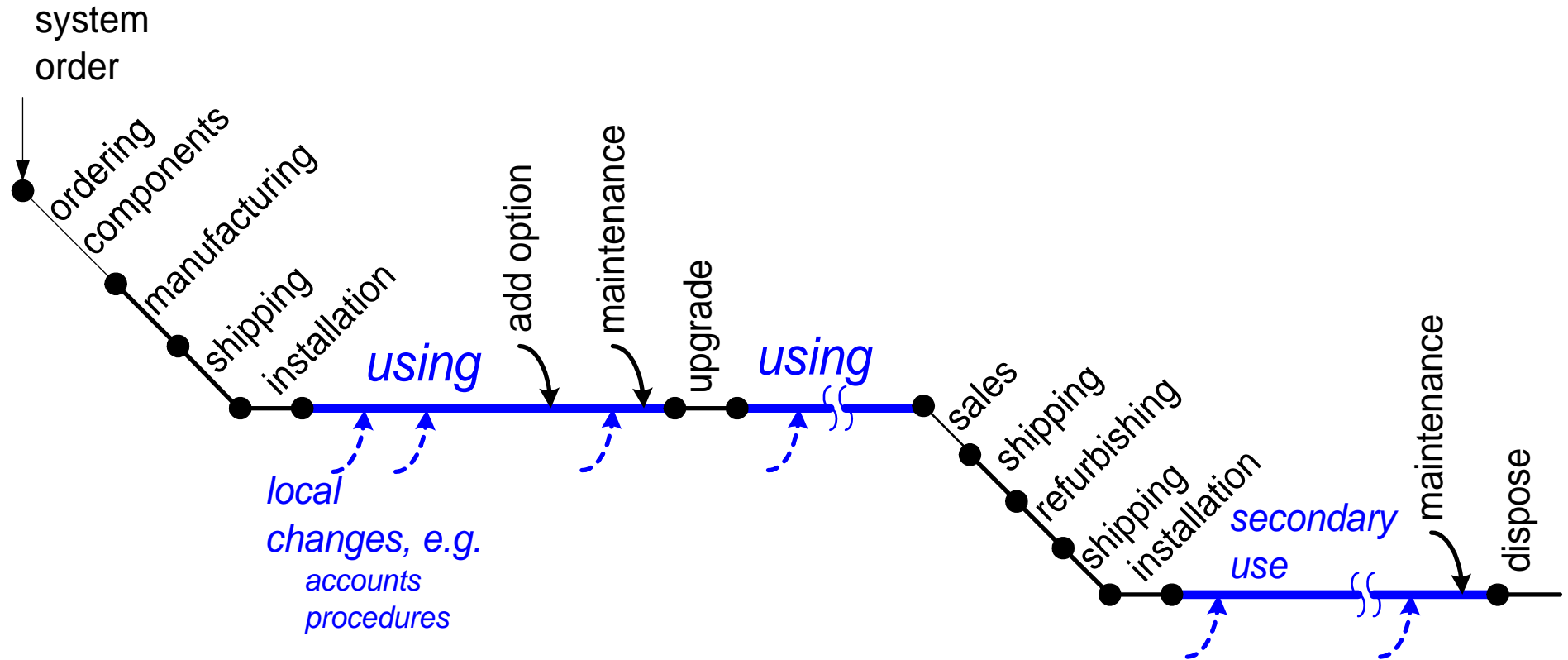
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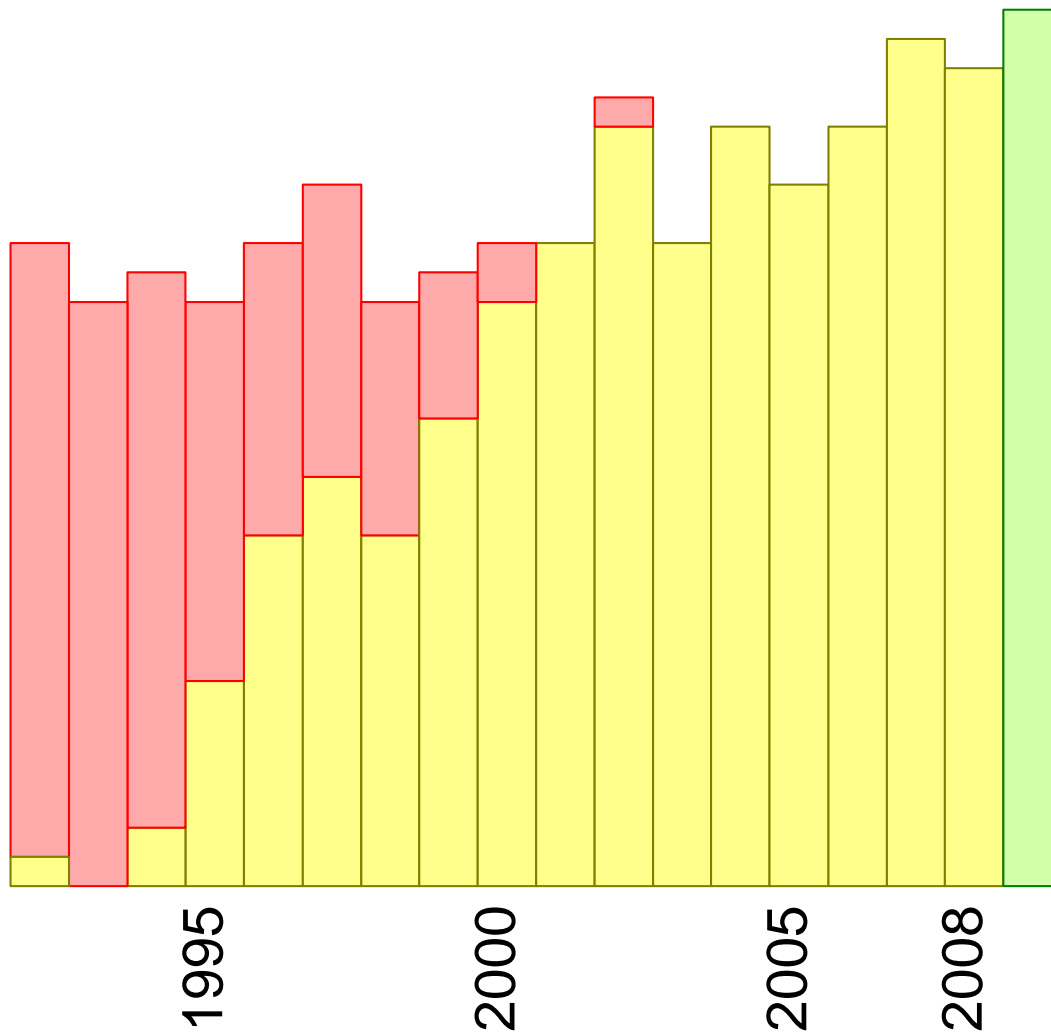
conclusion



System Life Cycle after Creation



Volume of Installed Base versus New deliveries



*installed base
10..20 times
initial deliveries*

legend

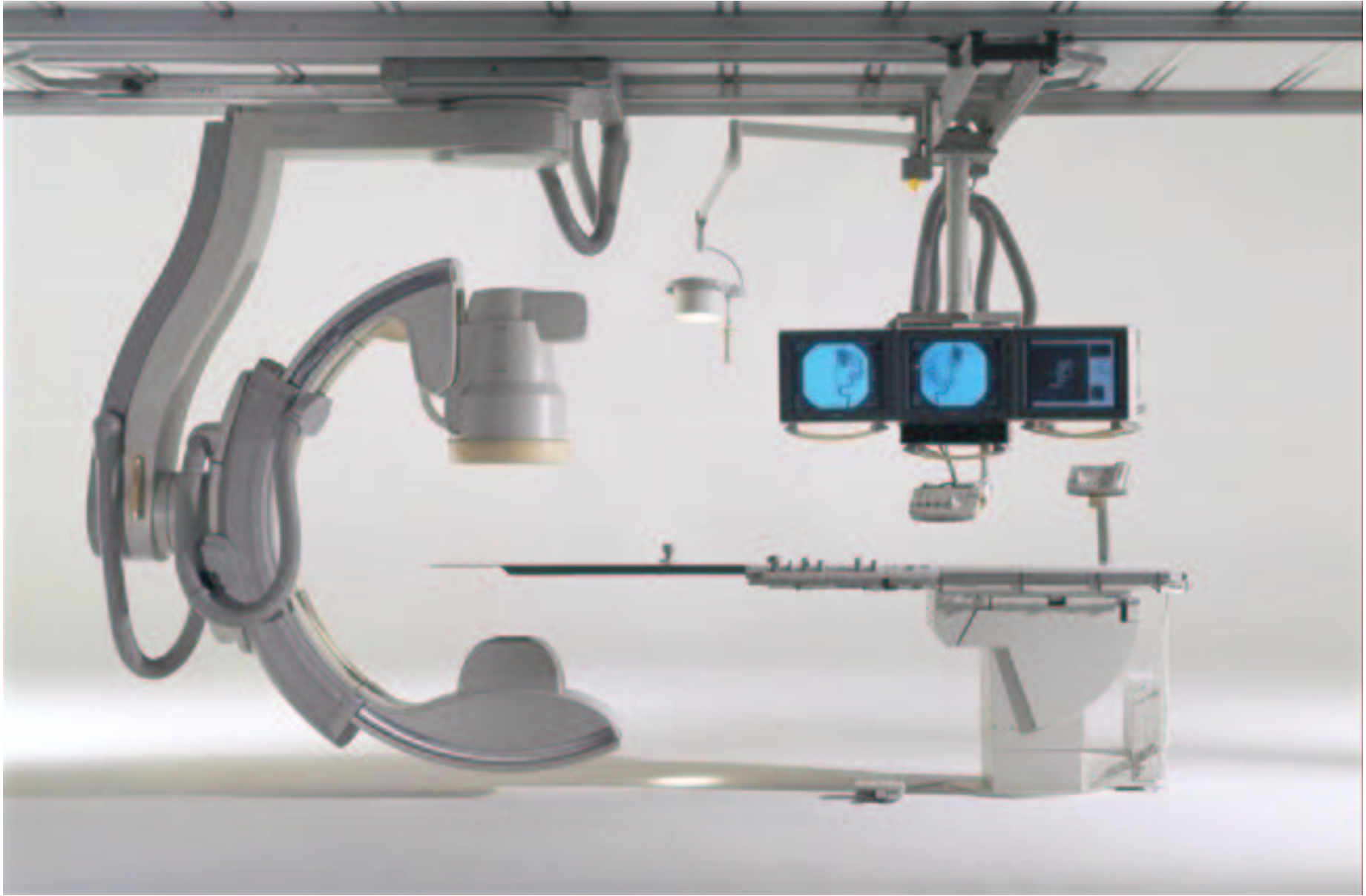
initial deliveries

installed base

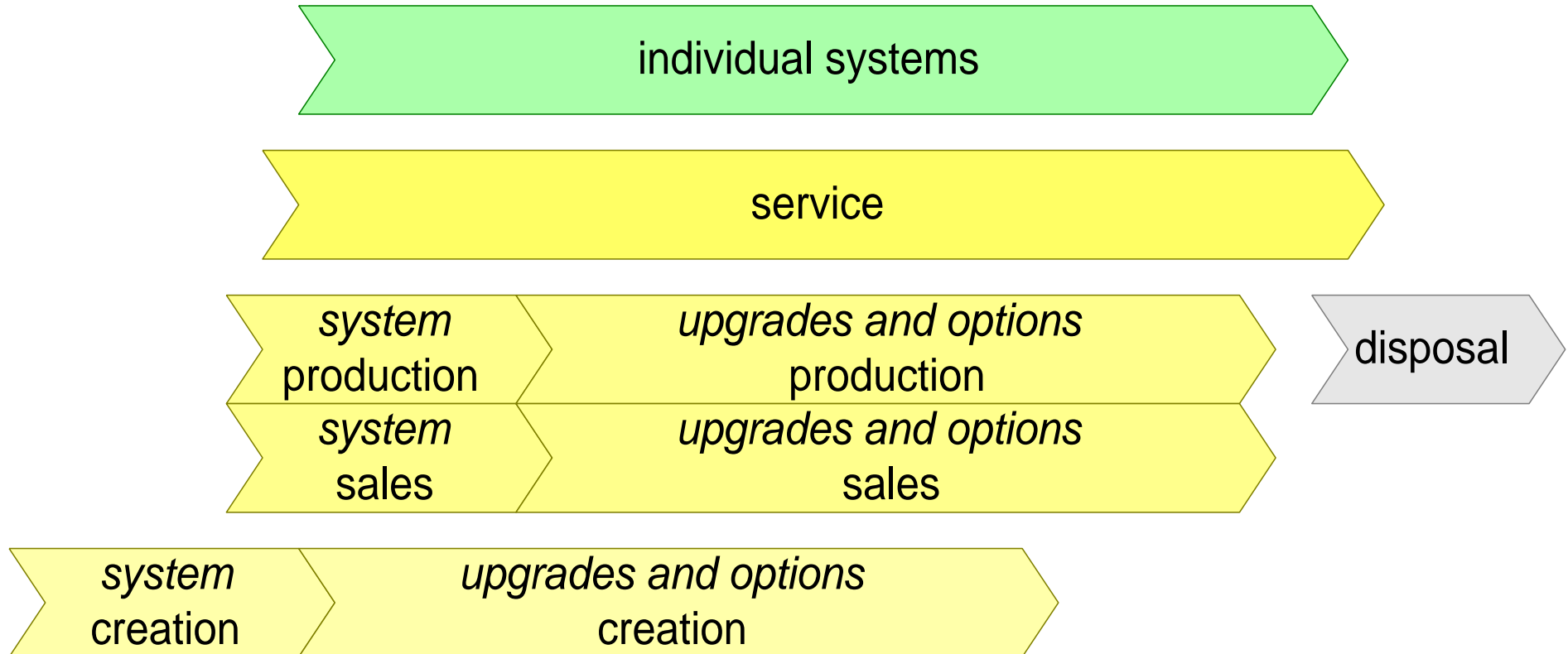
decommissioned

this is an entirely fictitious case

Case: X-ray Catherization System



Product Related Life Cycles



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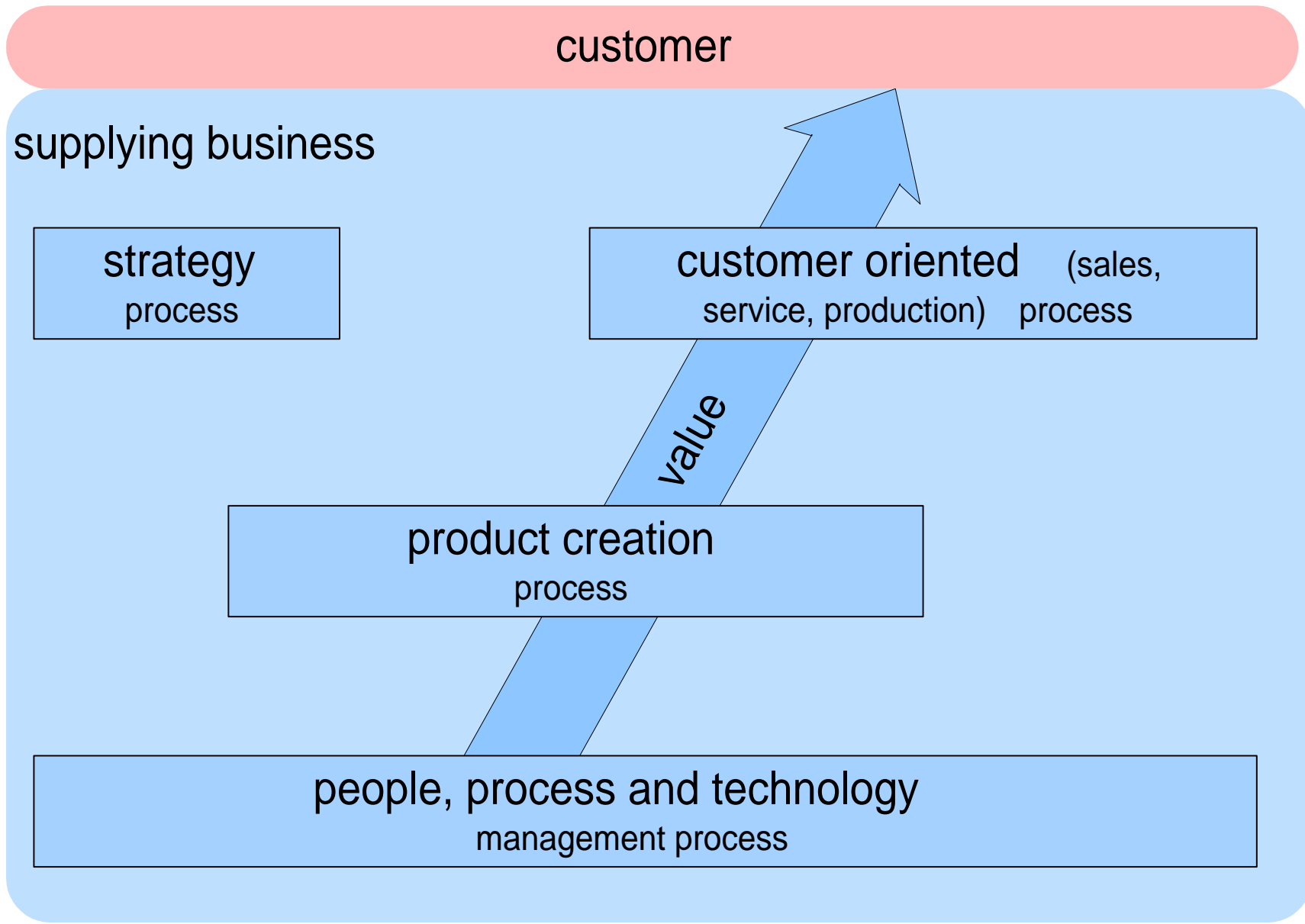
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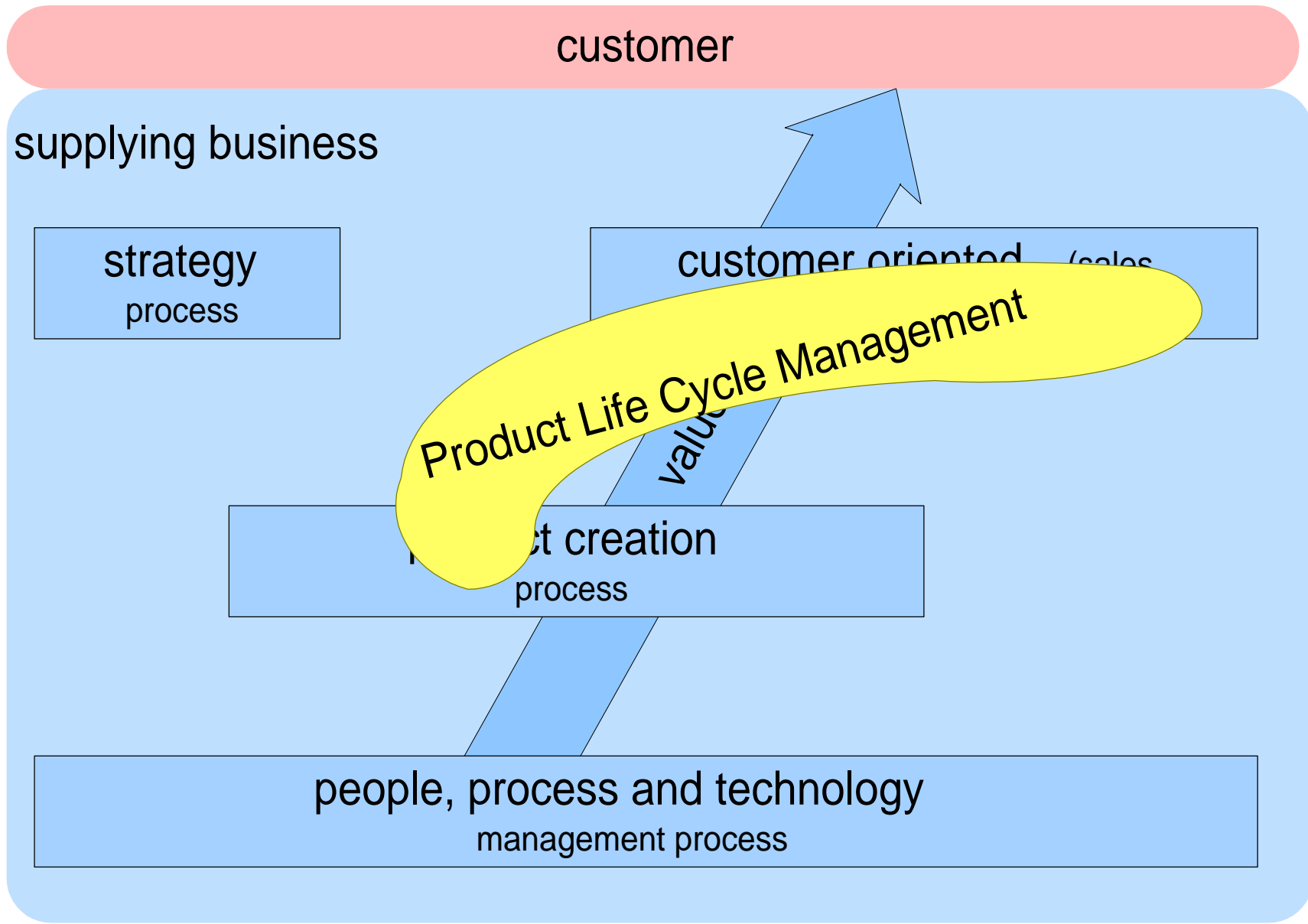
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Simplified process view



Positioning PLM



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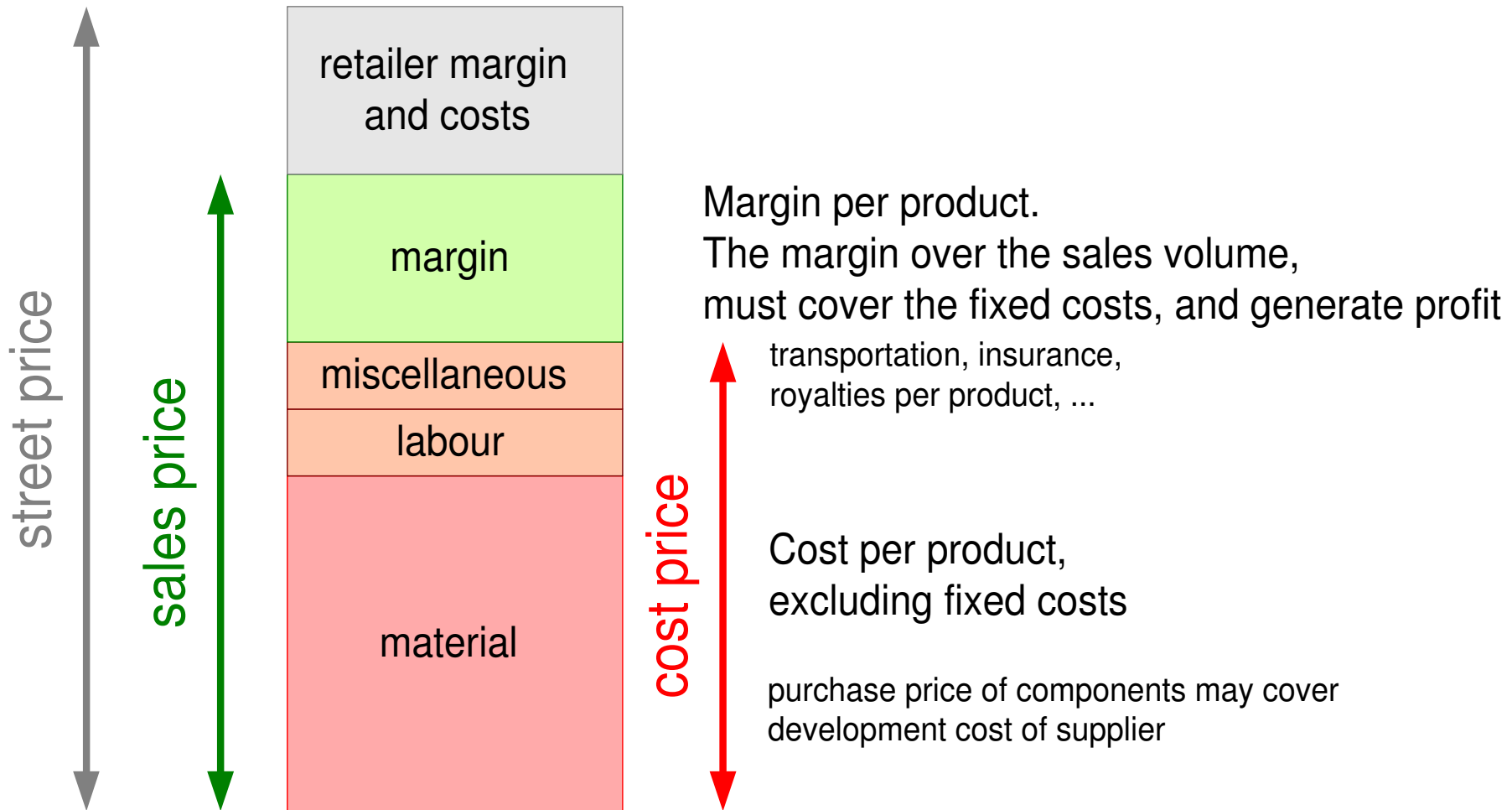
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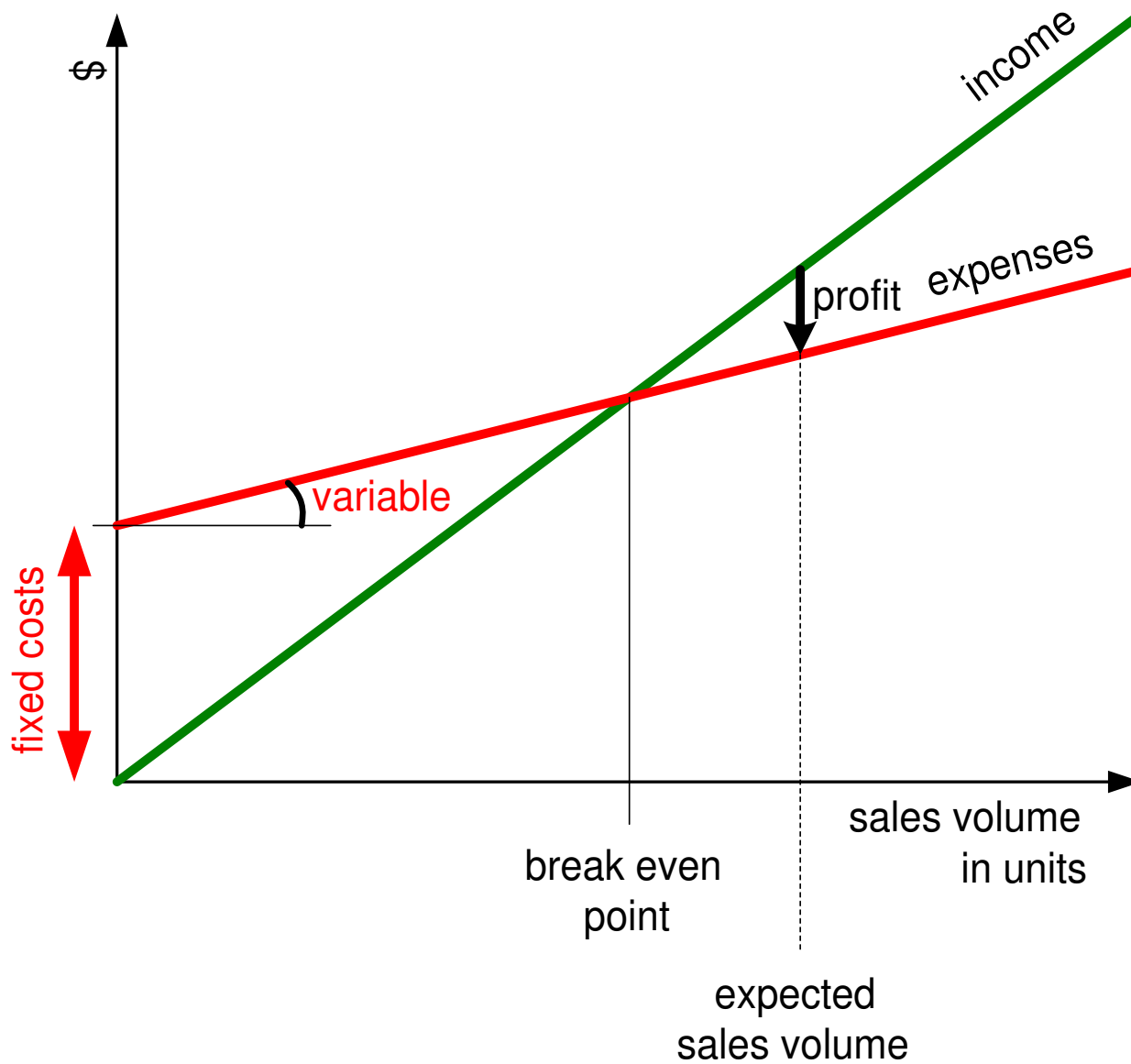
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Product Margin = Sales Price - Cost



Profit as function of sales volume



Investments, more than R&D



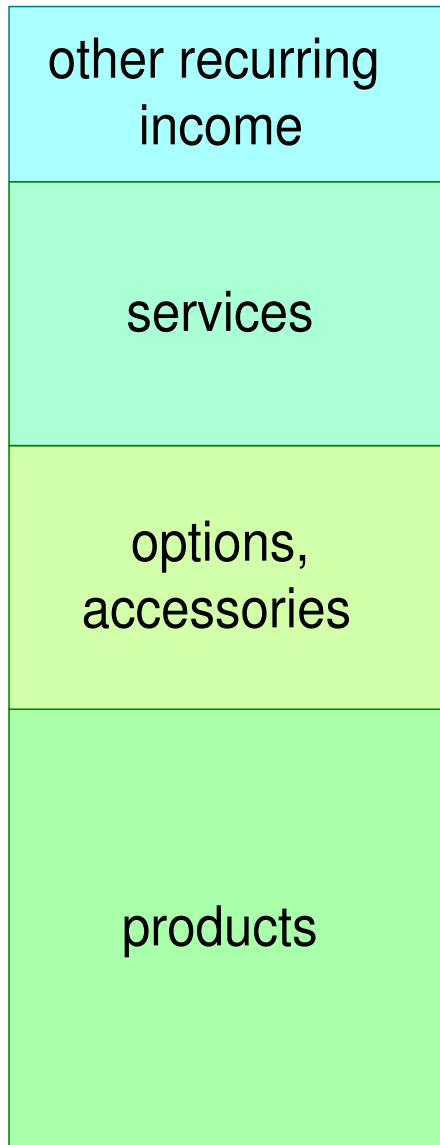
business dependent:
pharmaceutics industry
sales cost >> R&D cost

strategic choice:
NRE or per product

including:
staff, training, tools, housing
materials, prototypes
overhead
certification

often a standard staffing rate is used
that covers most costs above:
 $R\&D \text{ investment} = \text{Effort} * \text{rate}$

Income, more than product sales only



license fees
pay per movie

$$\sum_{\text{services}} \text{income}_{\text{service}}$$

content, portal
updates
maintenance

$$\sum_{\text{options}} \text{sales price}_{\text{option}} * \text{volume}_{\text{option}}$$

$$\text{sales price}_{\text{product}} * \text{volume}_{\text{product}}$$

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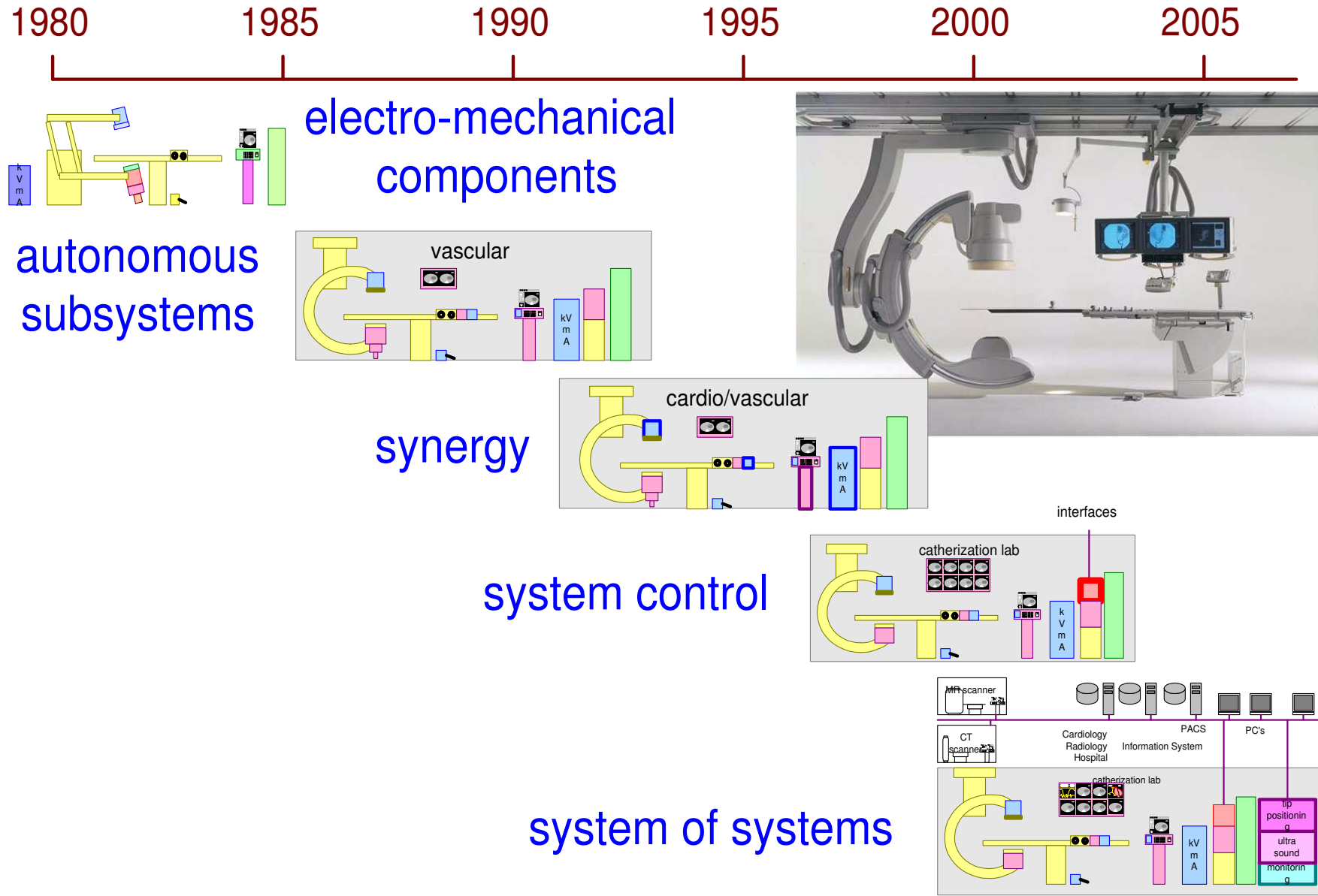
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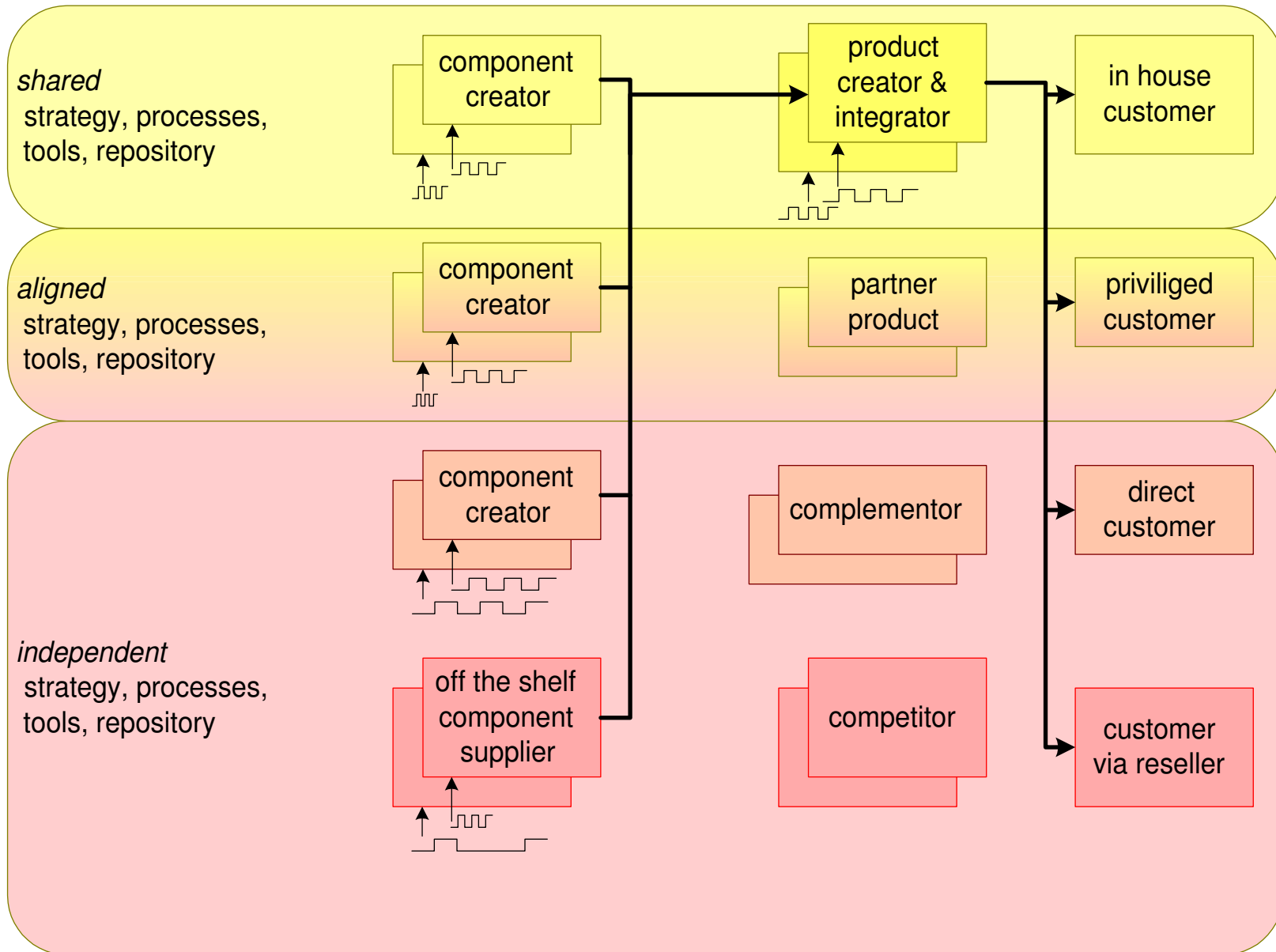
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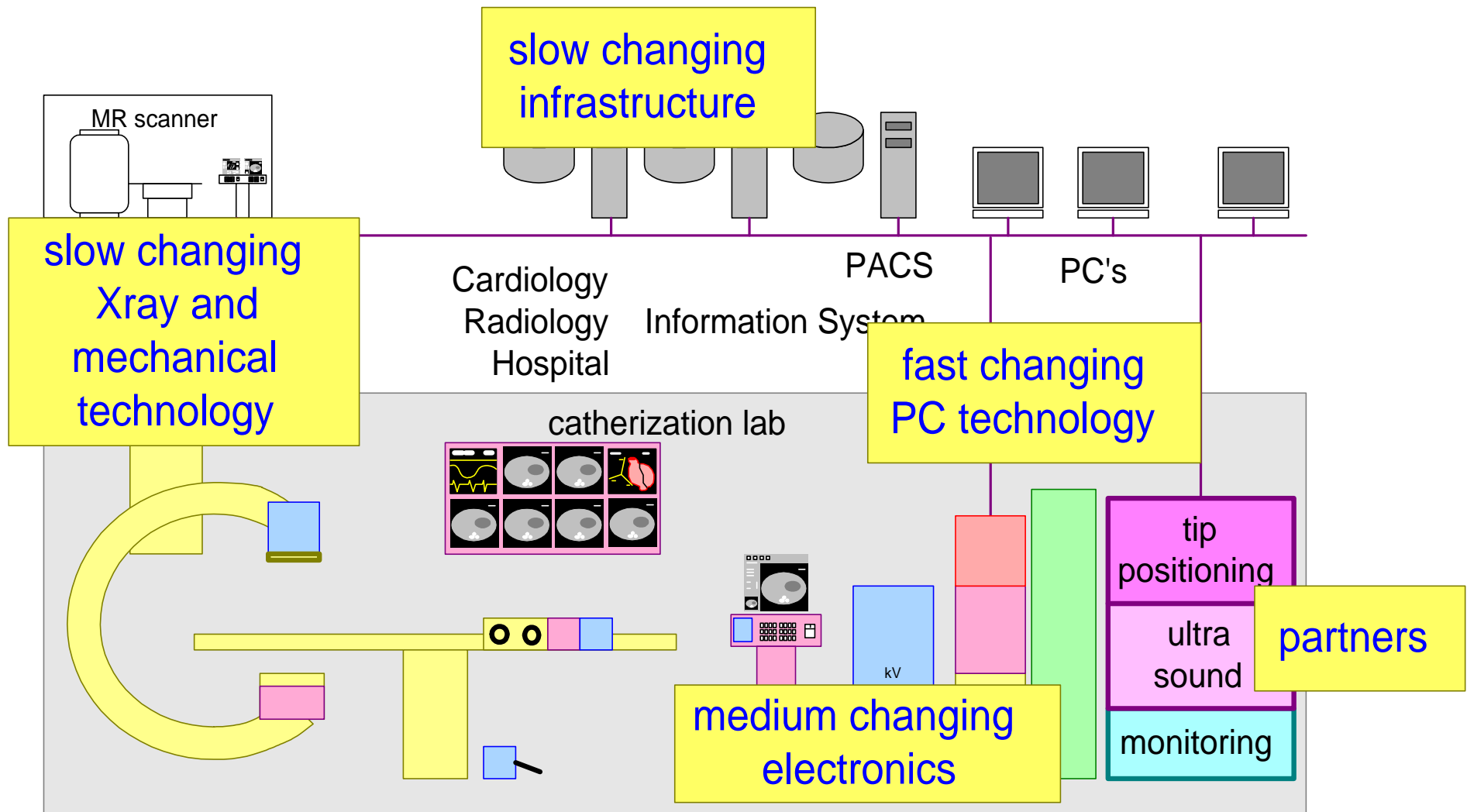
Example: Evolution of X-ray Systems



Creation Chain

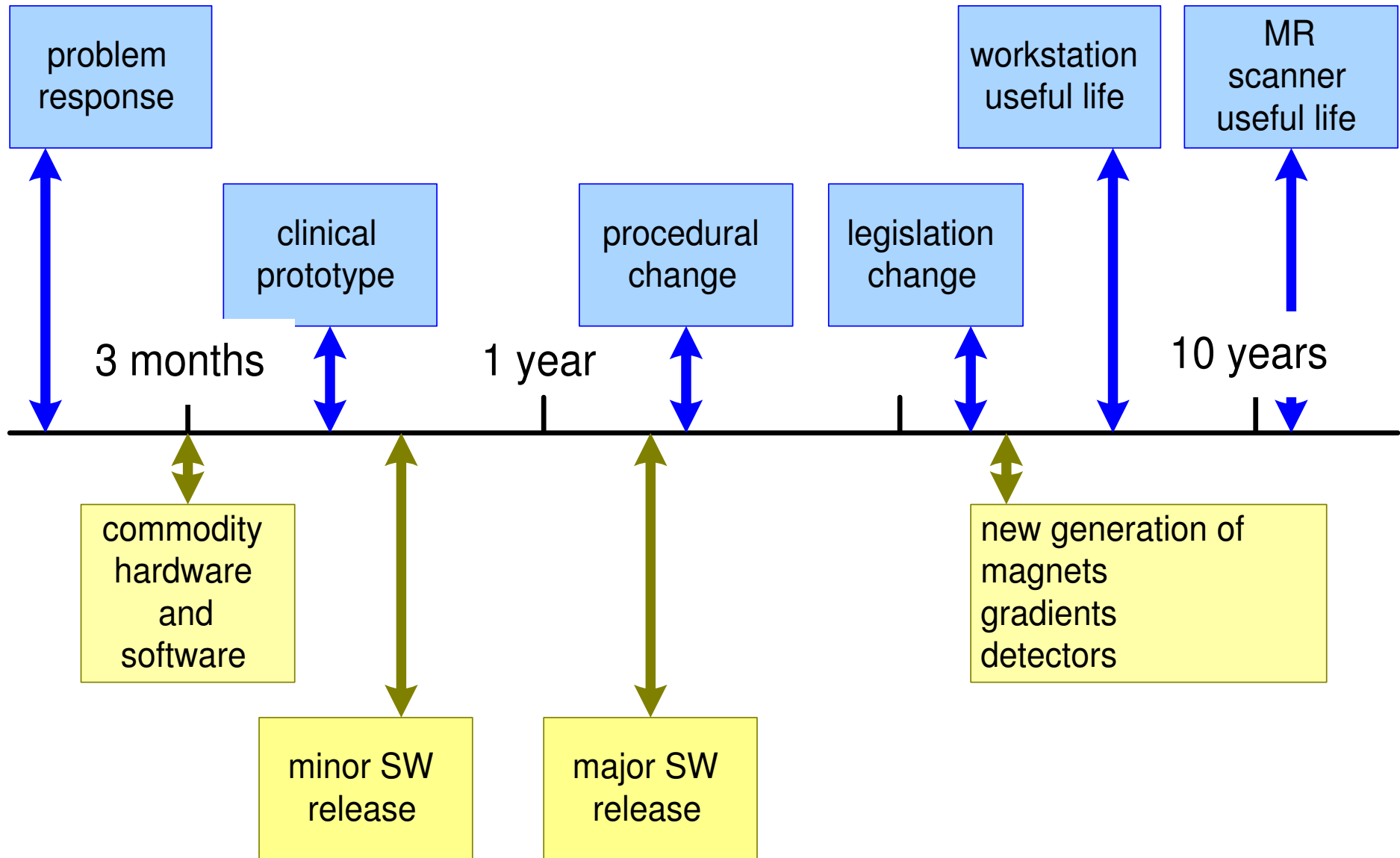


Example: X-ray Catherization System



X-ray catherization environment anno 2005

Example of Time Scale Model for Changes



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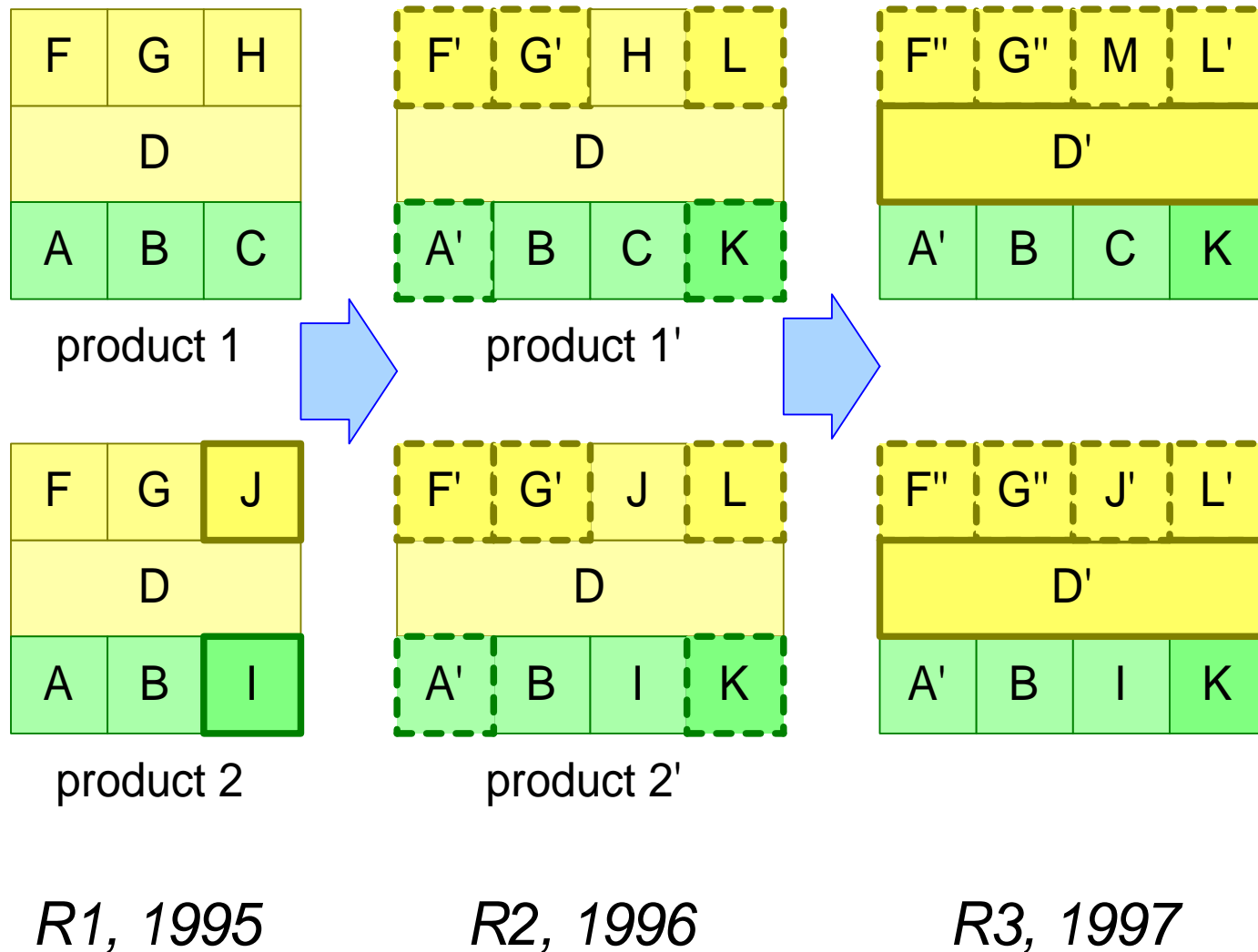
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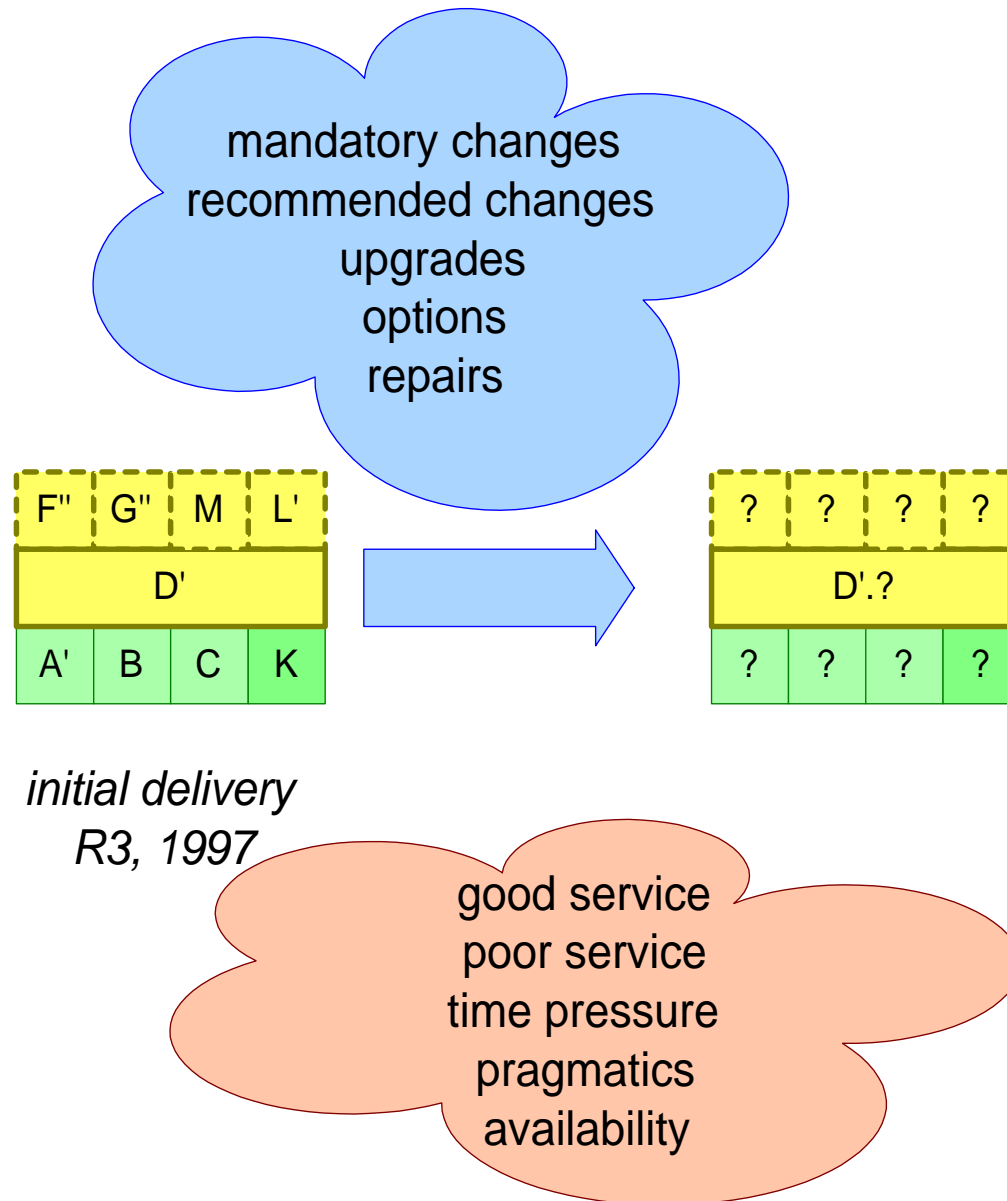
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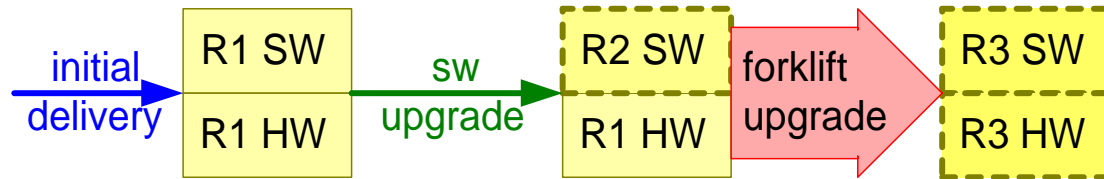
Product Configurations Evolve Continuously



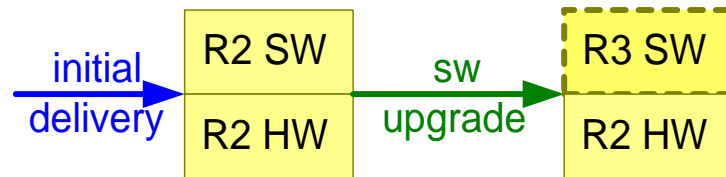
Regression of Configuration



Compatibility and Upgrading



How long are new functions compatible with older system configurations?



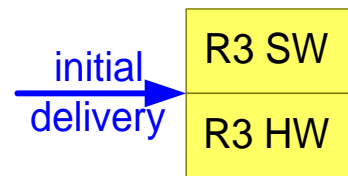
When to break compatibility?

When does the customer pay for an upgrade?

When to retrofit?

example

Try to run Windows Vista on your 1GB computer from 2005...



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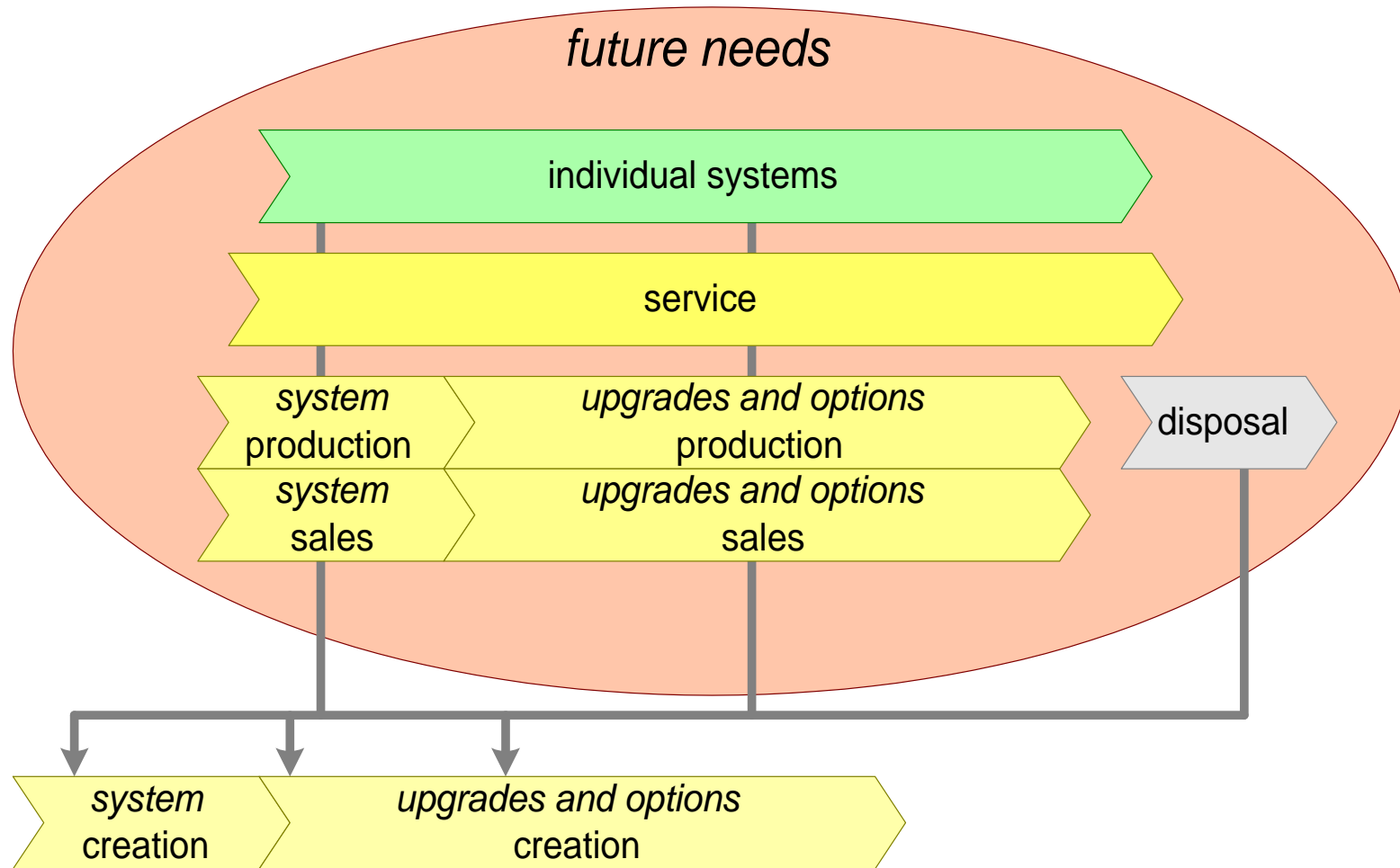
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*Systems Engineering: anticipation of future needs
when creating new systems and features*

Basic System Life Cycle

