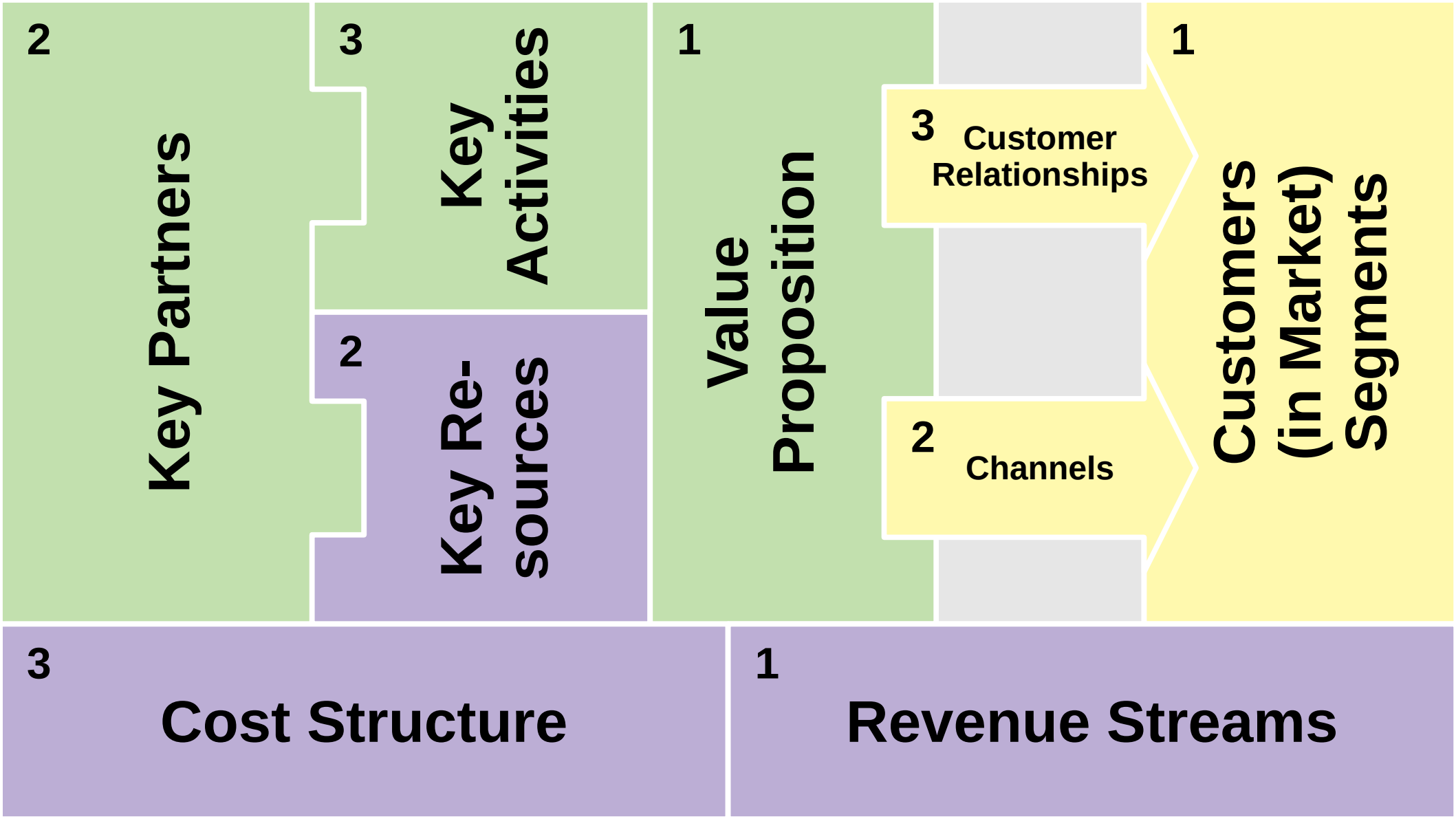


**A01**

# **Course Introduction**



**Key Partners**

**Key Re-  
sources**

**Key  
Activities**

**Value  
Proposition**

**Channels**

**Customer  
Relationships**

**Customers  
(in Market)  
Segments**

**Cost structure**

**Revenue Streams**

**A03**

# **The Business Model Canvas**

# Problem / Need

Need

- Remove boredom
- Ease communication
- Display status

- Improve well-being

Problem

- Create savings
- End challenges
- Eliminate risks

- xxx

Pain

Gain

## Pain / Gain

**Key Partners**

**Key  
Resources**

**Key  
Activities**

**Value  
Proposition**

**Channels**

**Customer  
Relation-  
ships**

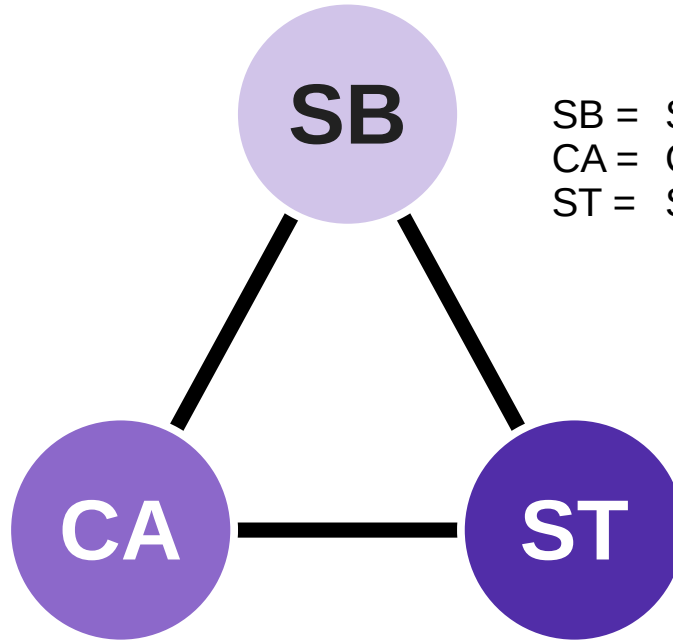
**Customers  
(in Market)  
Segments**

**Cost Structure**

**Revenue Streams**

**B01**

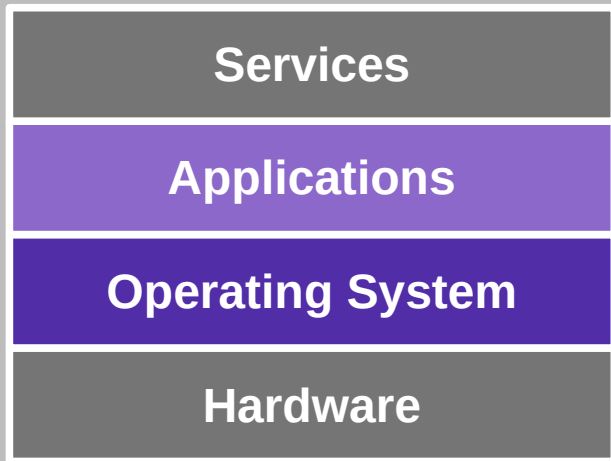
# **The Software Industry**



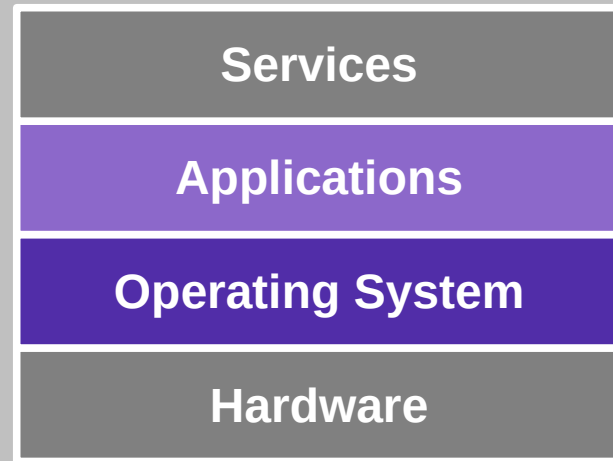
SB = Standards body  
CA = Certification agency  
ST = Standards trainer



# IBM



# DEC



## Services

IBM

Accenture

Tata

## Application

Microsoft Word

GIMP

Twitter

## Operating System

Windows

Linux

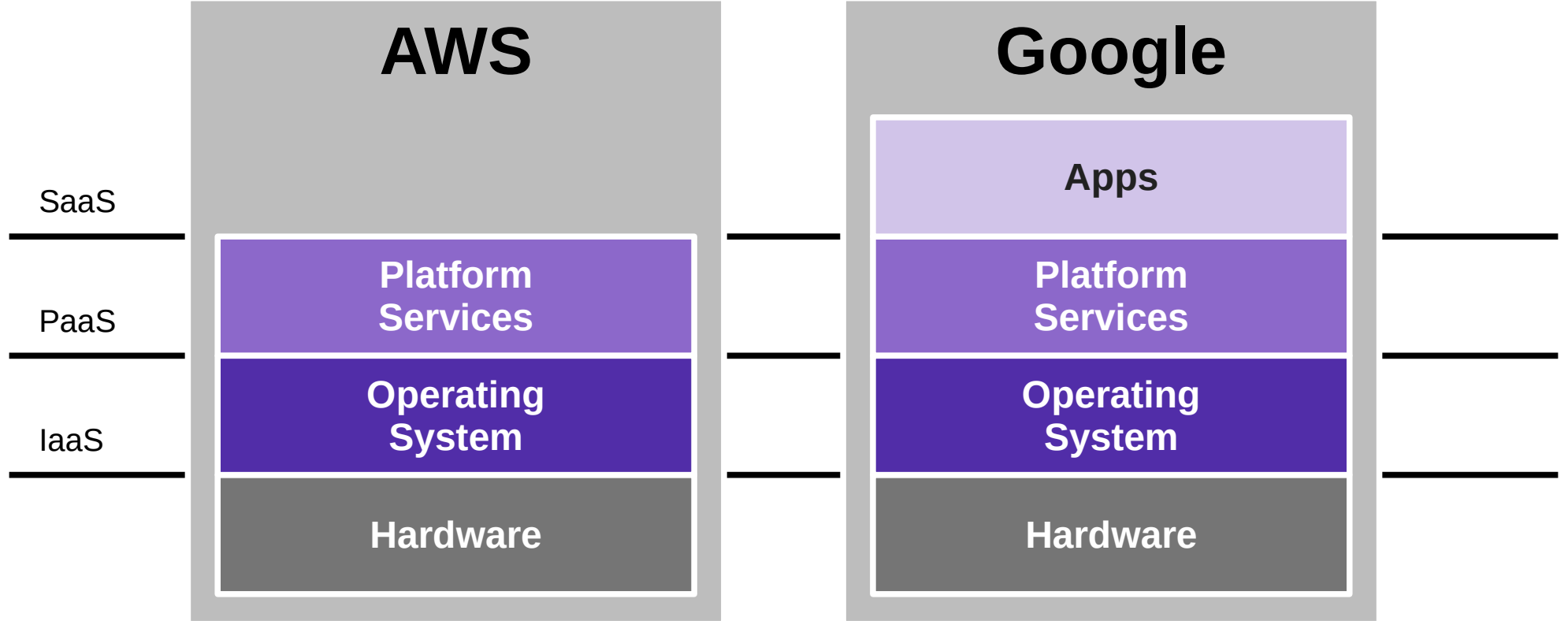
OS X

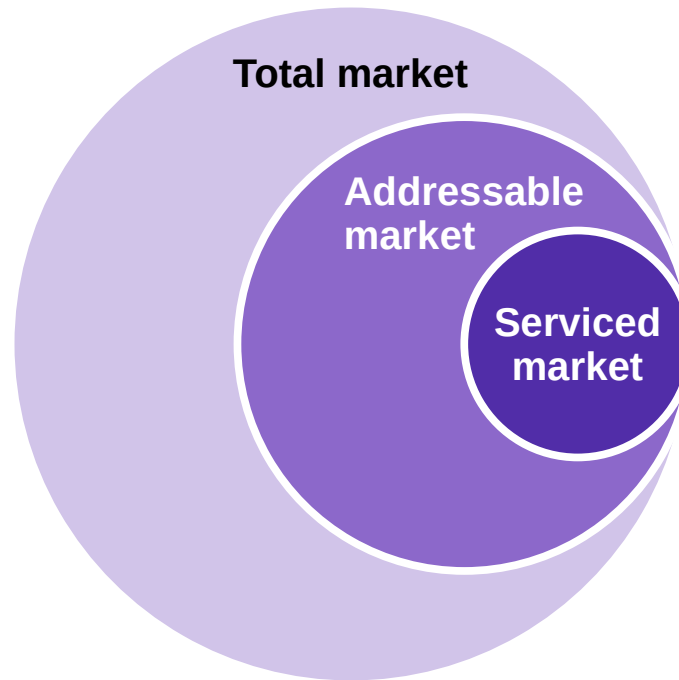
## Hardware

IBM

Dell

Samsung







 **Child**

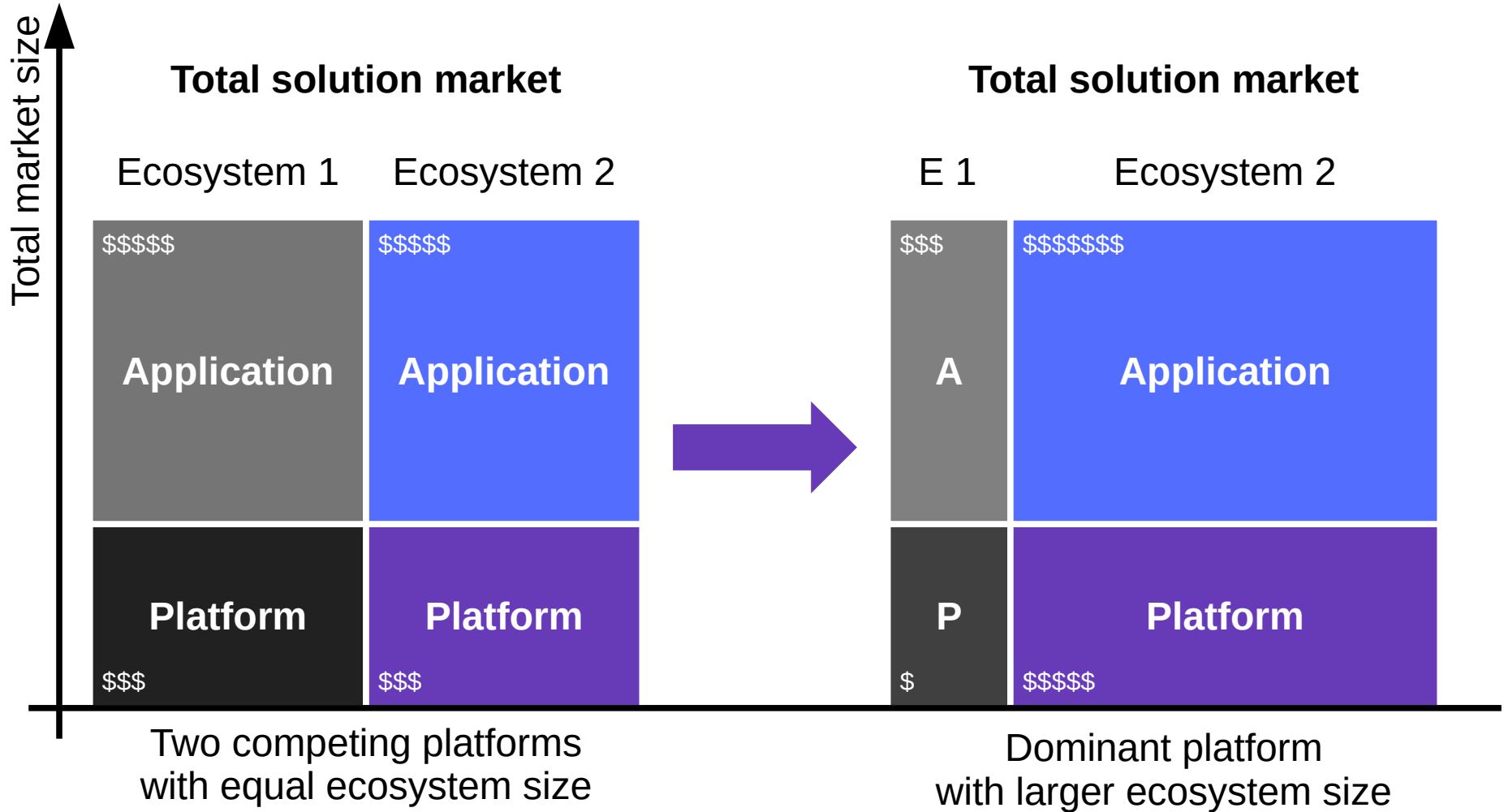
 **Teenager**

 **Single adult**

 **Married no kids**

 **Parent**

	Healthcare	Banking	Insurance	Energy	Automotive	...
CRM						
SRM						
ERP						
HRM						
...						



**B02**

**Software Products**



# Whole product

## Basic product

### Core product (intellectual property)

#### Software

- Core software
- Additional software (extensions + plug-ins, tools and utilities, integrations)

#### Complementary materials

- Documentation
- Training materials

#### Self-help services

- Forums, mailing lists
- Help and chat agents
- On-line tutorials

#### Pricing of usage rights

- Quantity: User, machine, time, ...
- Duration: Perpetual, time-limited, ...
- Structured: Initial license fee, regular subscription fee

### Guarantees (“insurance”)

- Fitness for use
- Certification

#### Pricing of guarantees

- By damage: Loss of business, fines received
- Structured: Levels / bands, formula

### Support services

- Hot-line support
- On-site servicing

#### Pricing of support services (SLAs)

- By availability: Incident-based, 9x5, 24x7
- By quality: First-level, second-level, third-level

## Training

- In-house training
- Off-site training

#### Pricing of training

- Fixed fee
- Per participating person

## Consulting

- Technical implementation services
- Strategic solution consulting

#### Pricing of consulting

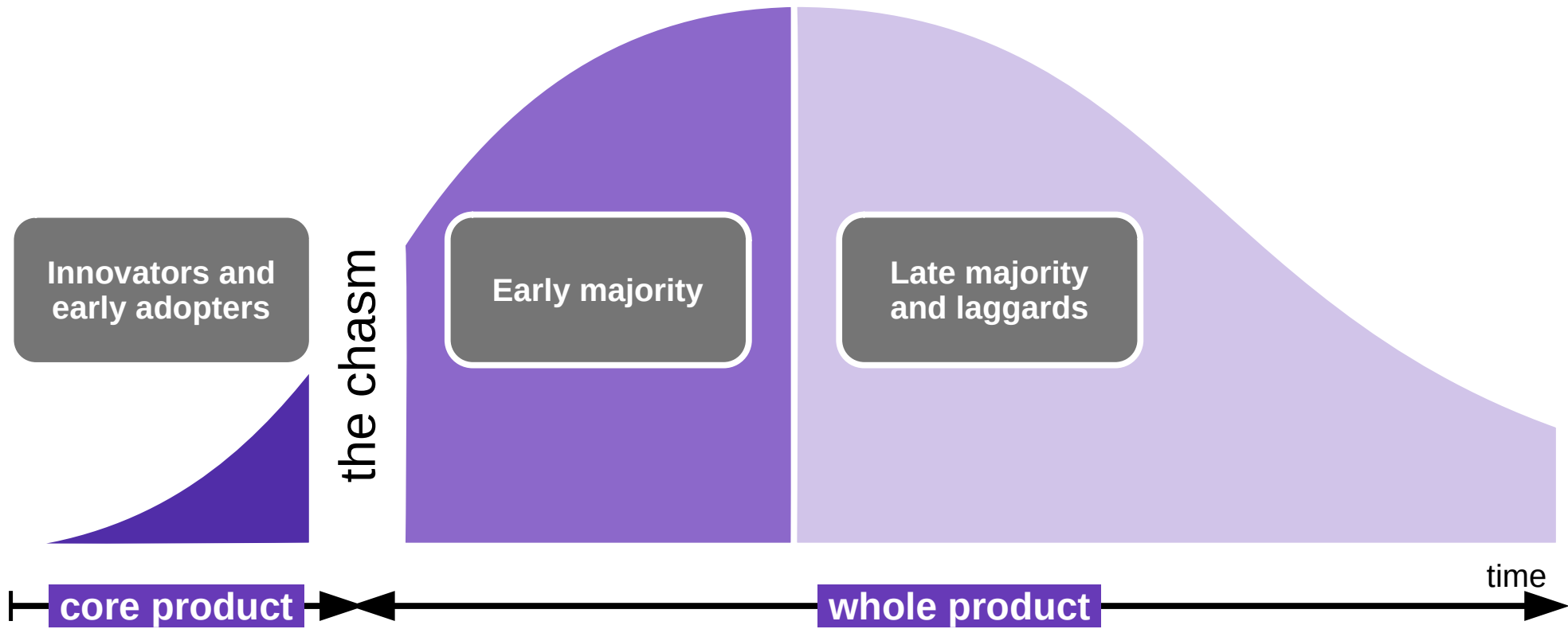
- Fixed fee
- Time and materials

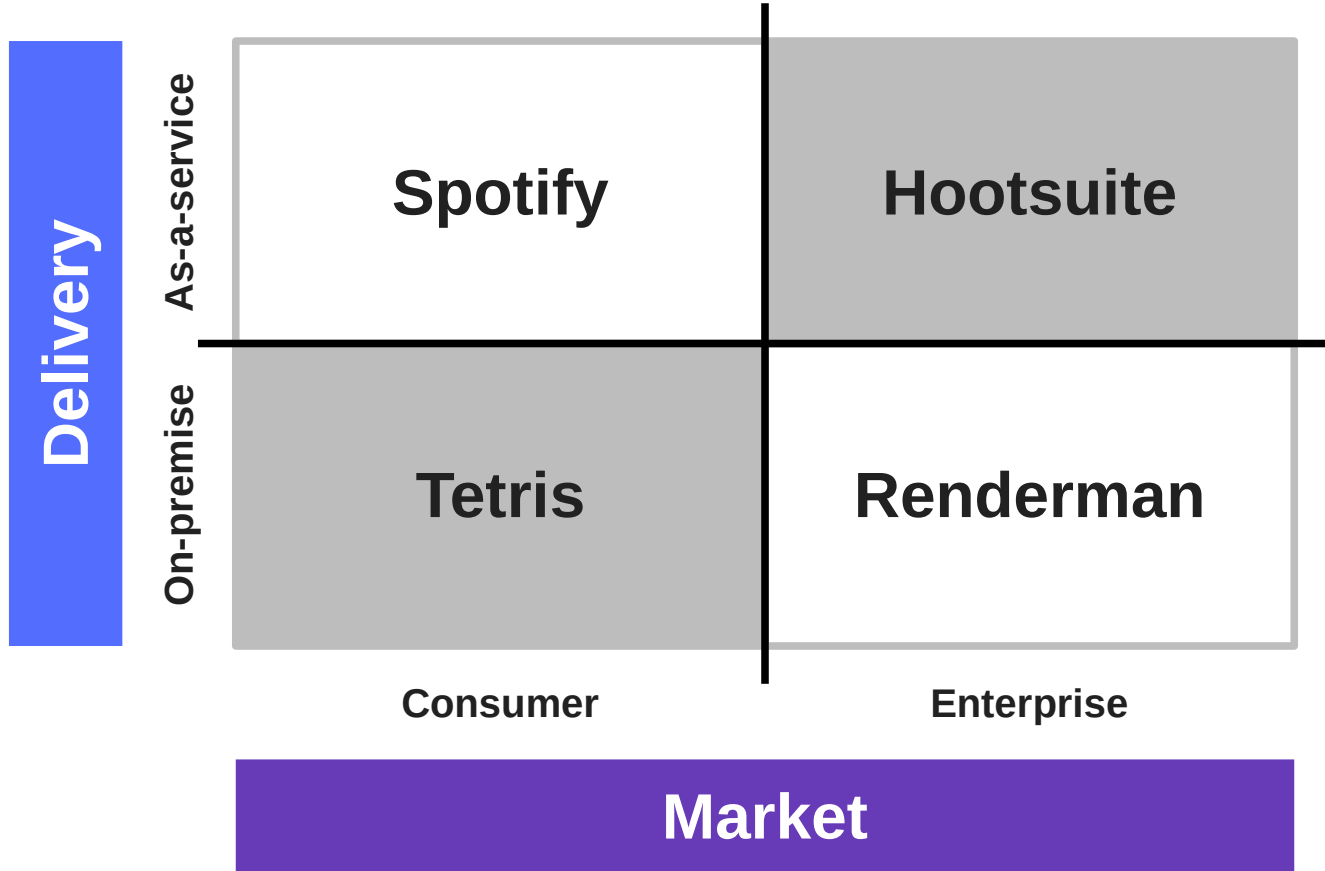
## Operations

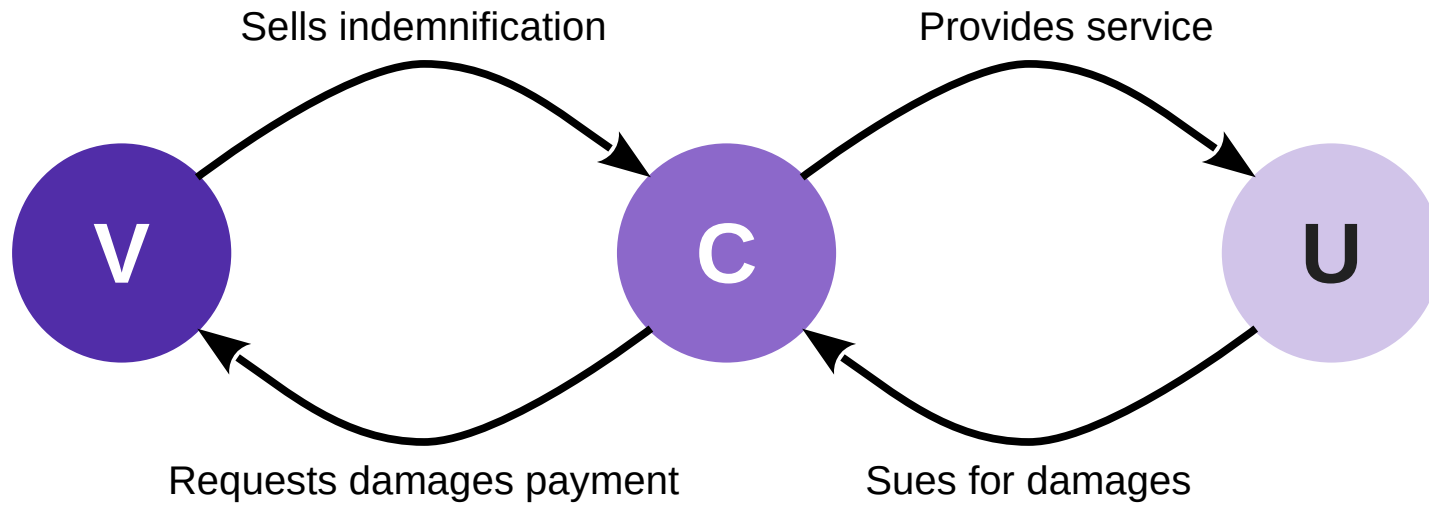
- Provision of SaaS (managed service)

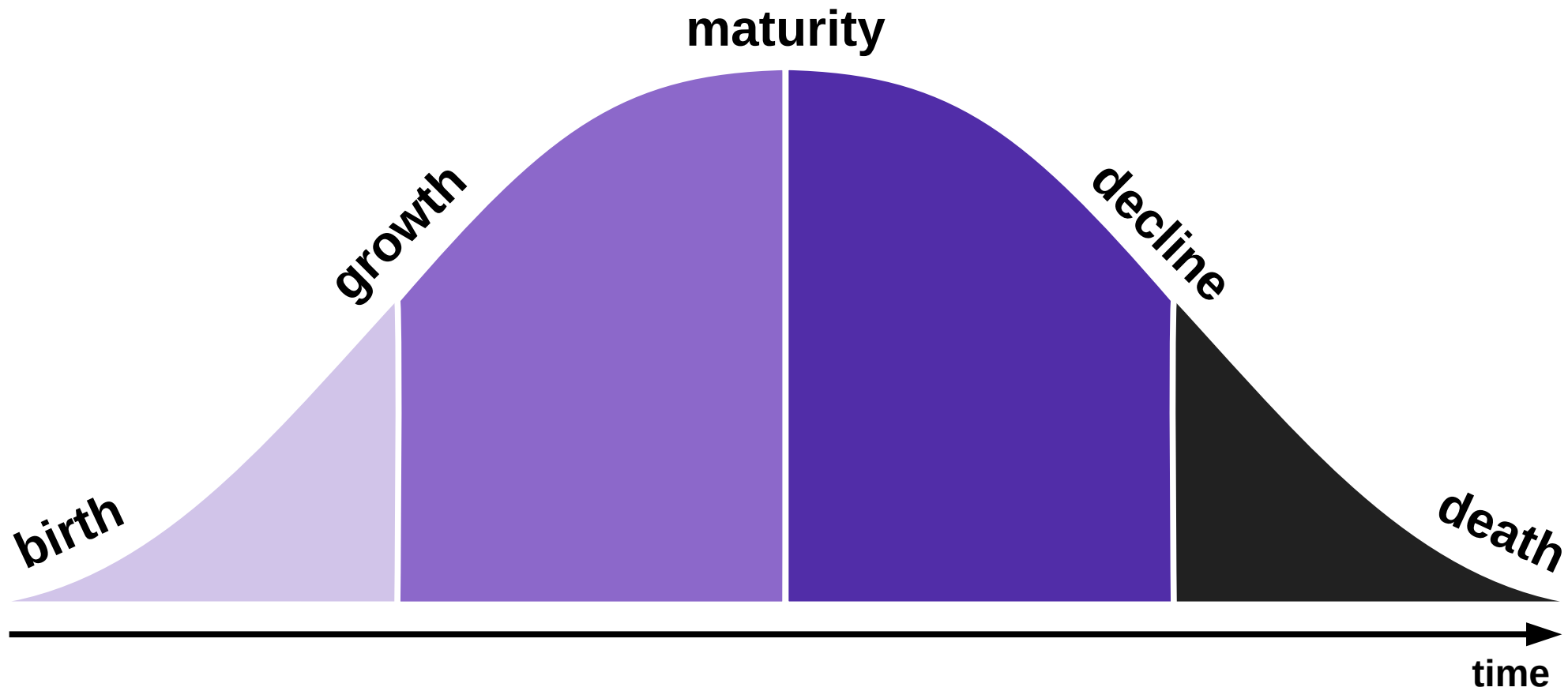
#### Pricing of operations

- Quantity: Users, resources, ...
- Duration: Always time-limited
- Structured: Set-up, subscription



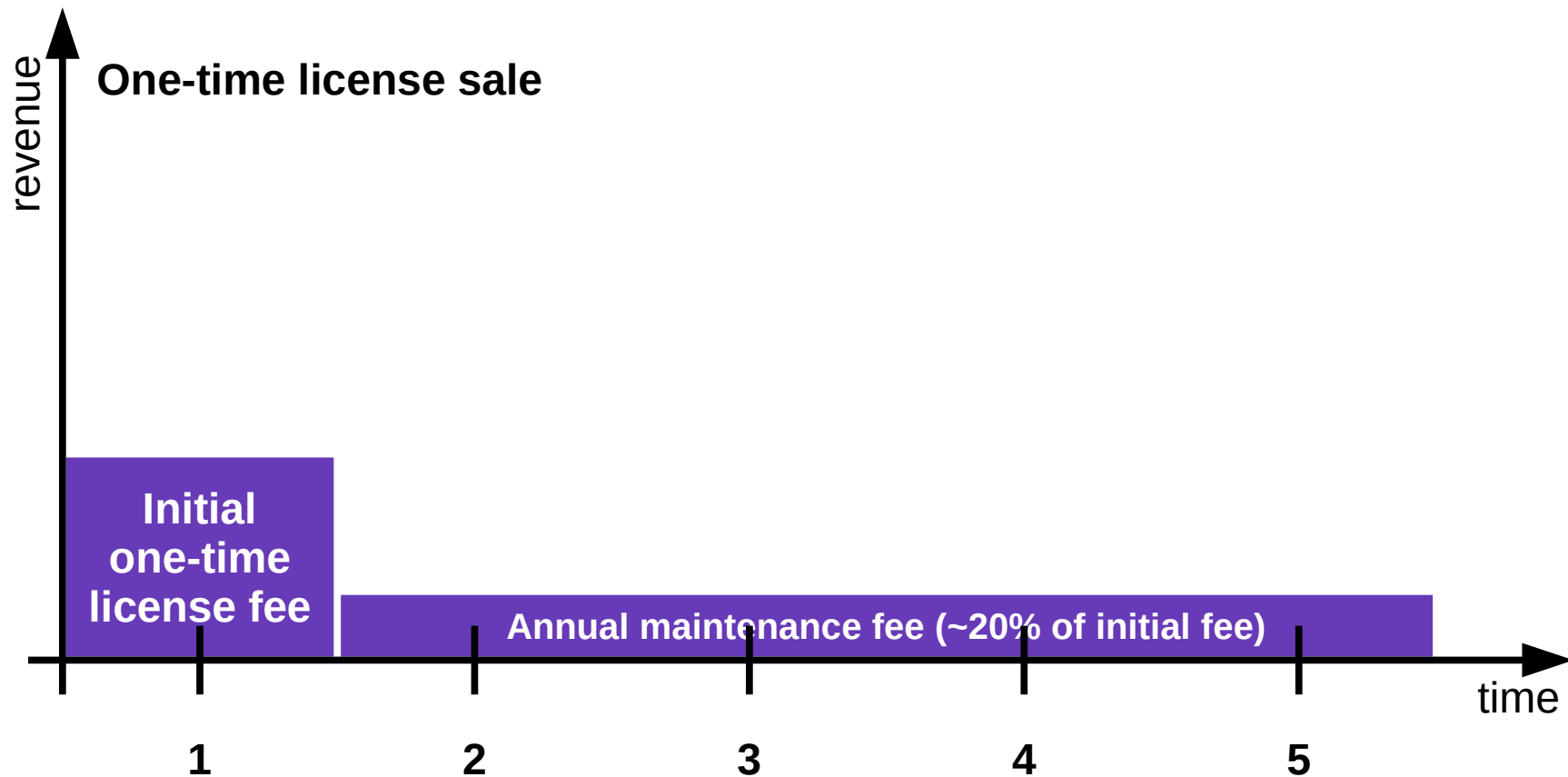


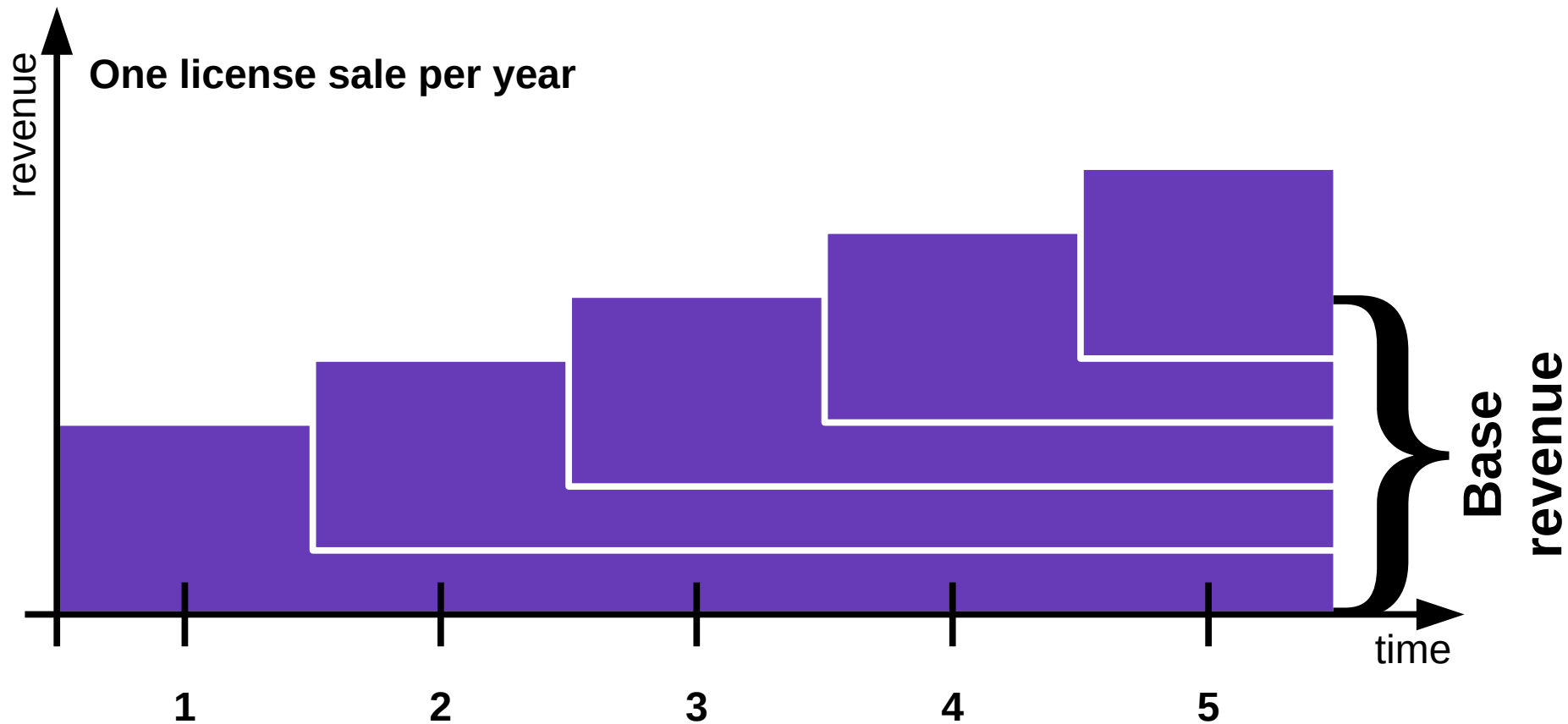




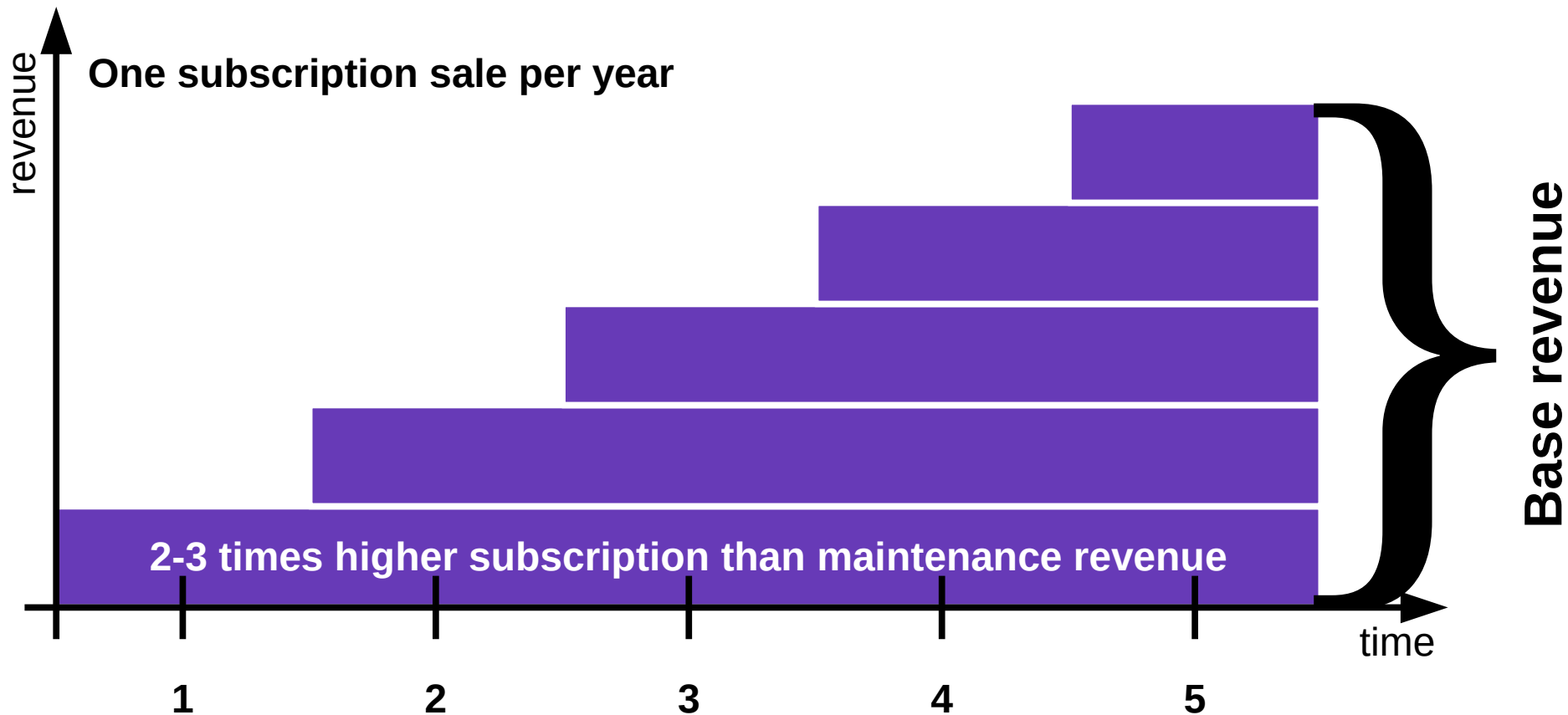
**B03**

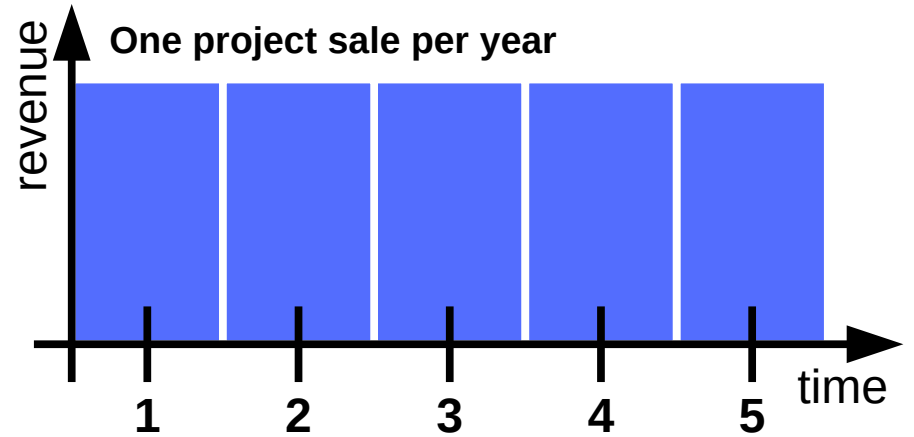
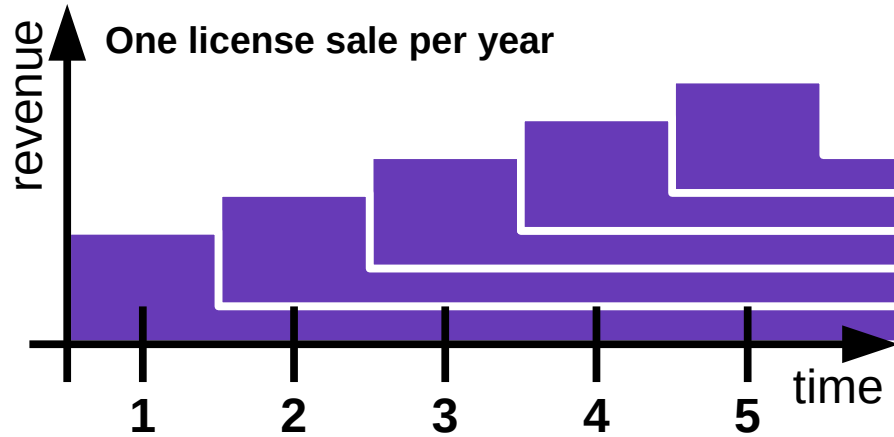
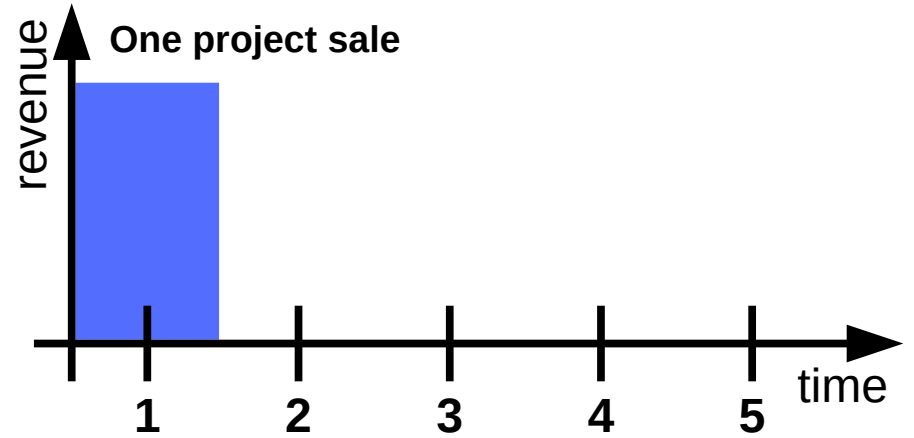
**Software Vendors**



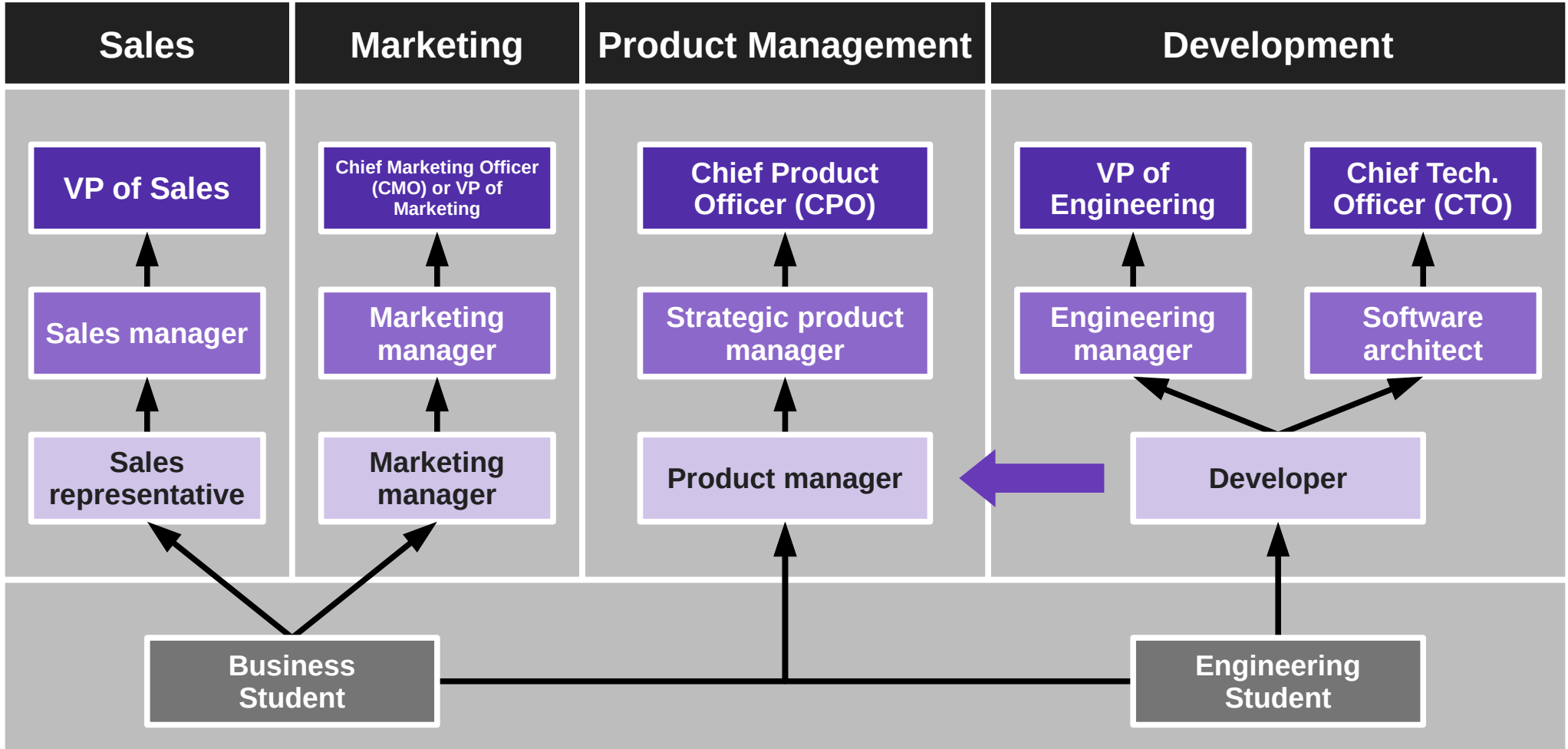


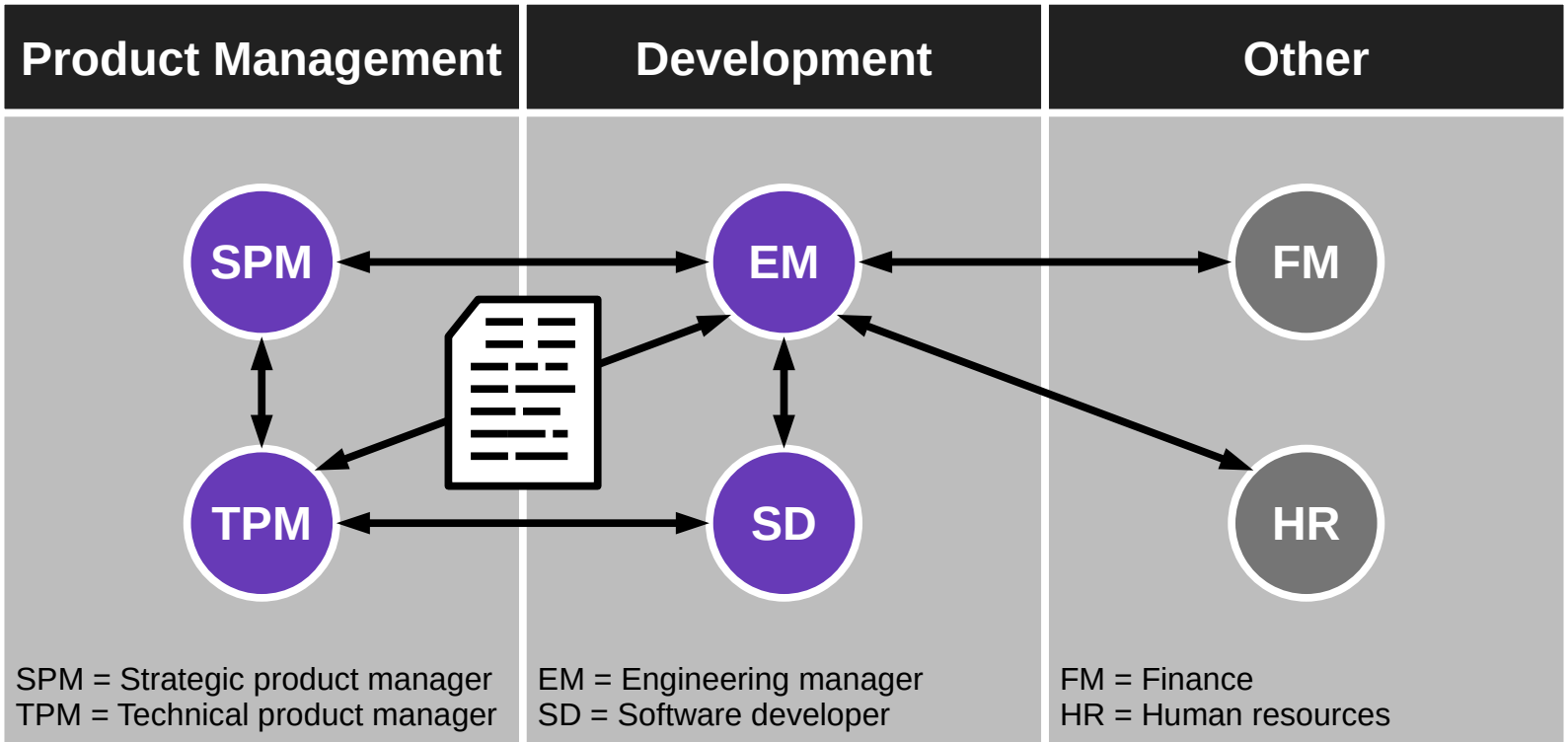


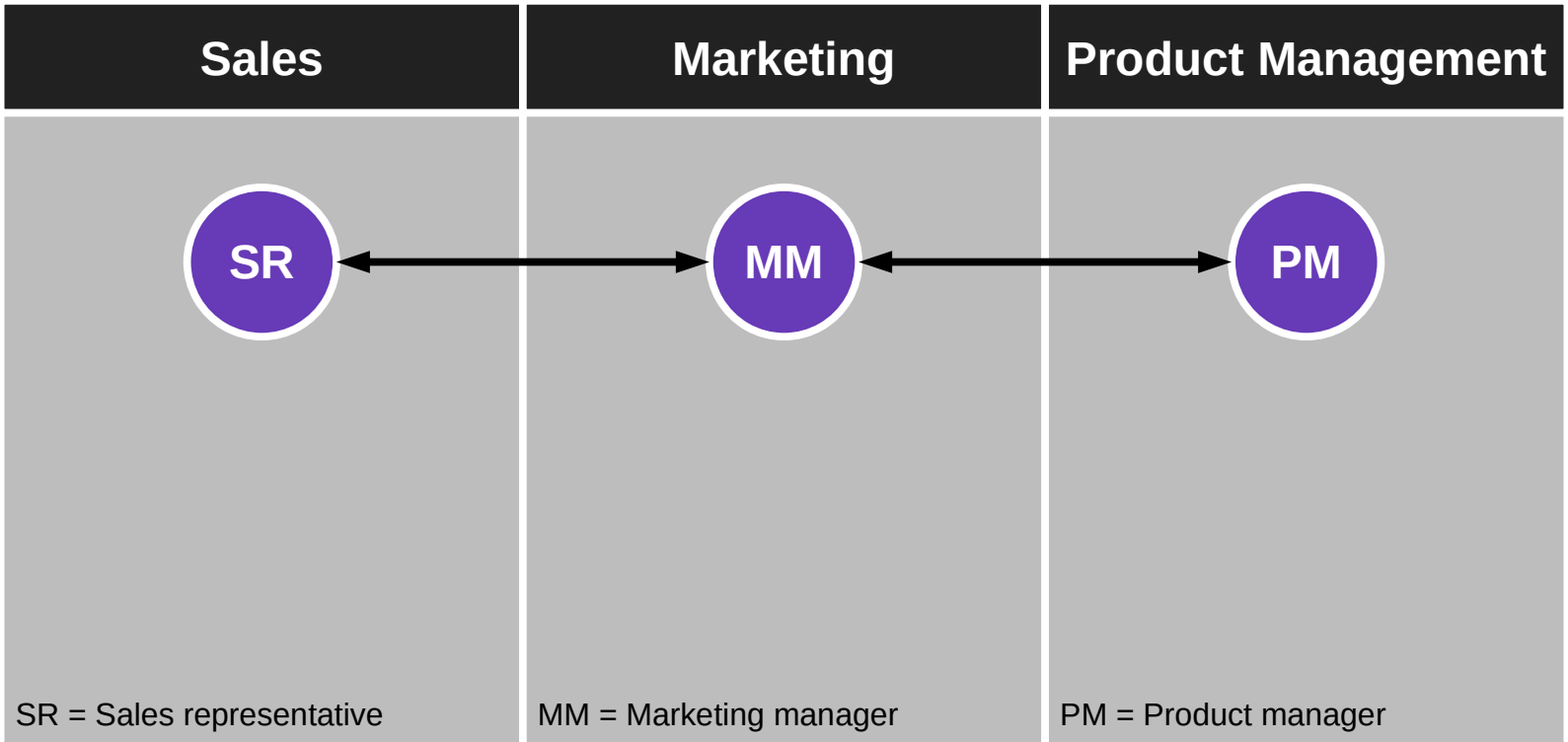


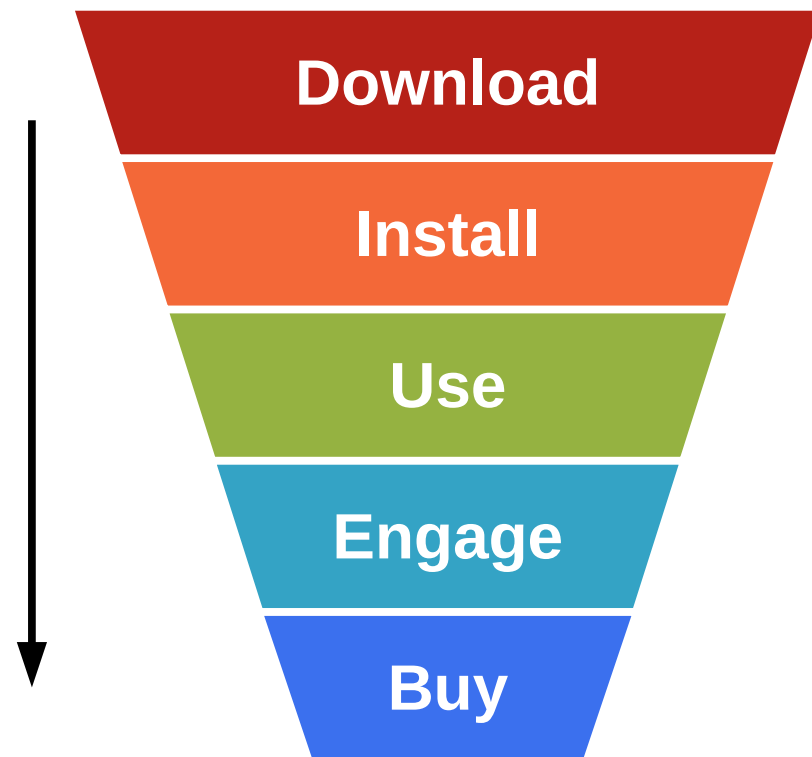


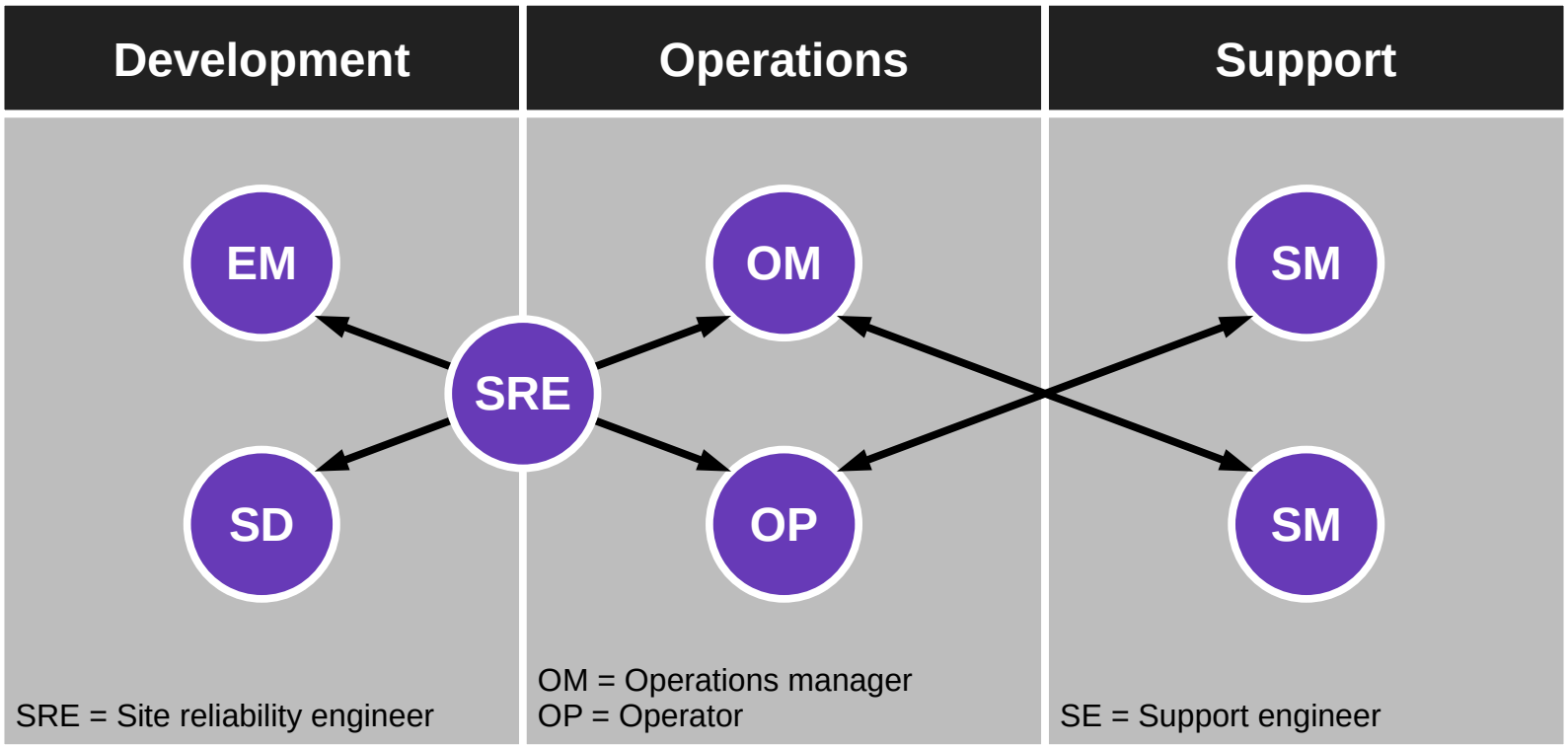
Sales and Marketing			Professional services	Product management	Engineering			Other (HR, Finance, ...)
Sales	Marketing	Customer success			Development	Operations	Support	
<div></div>	<div></div>			<div></div>	<div></div>	<div></div>		<div></div>
	<div></div>			<div></div>				
				<div></div>	<div></div>	<div></div>	<div></div>	
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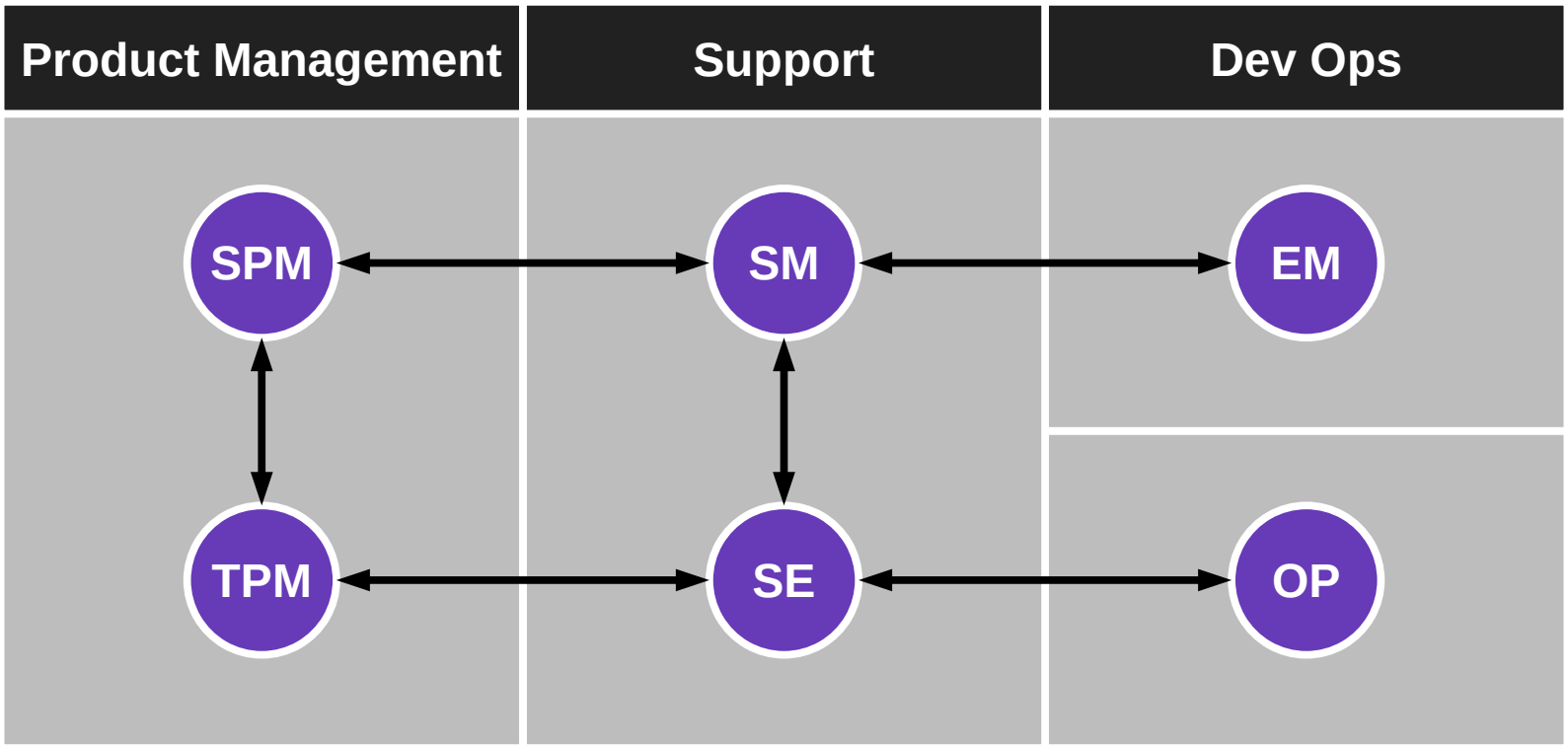


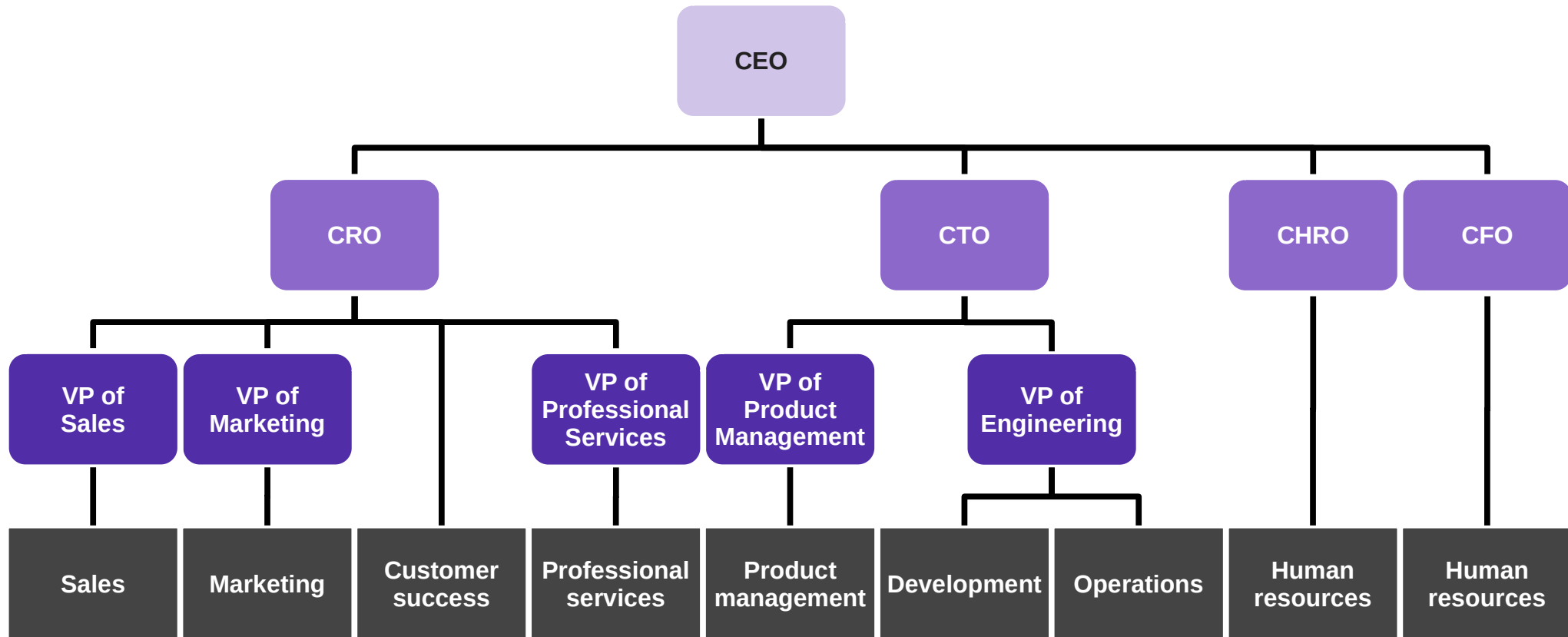






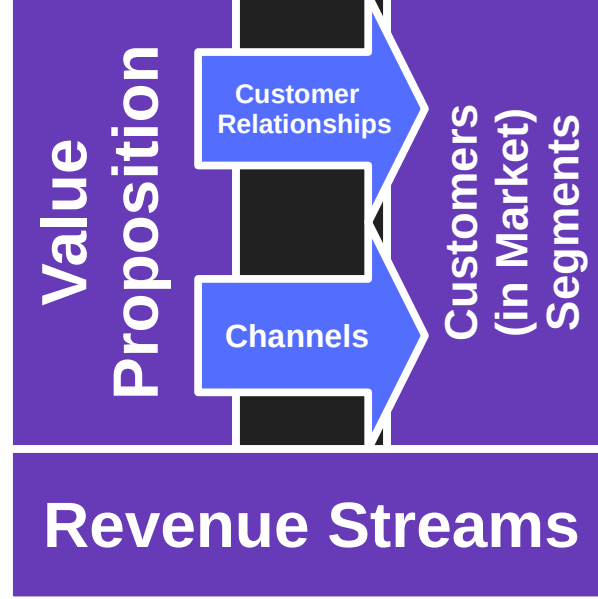


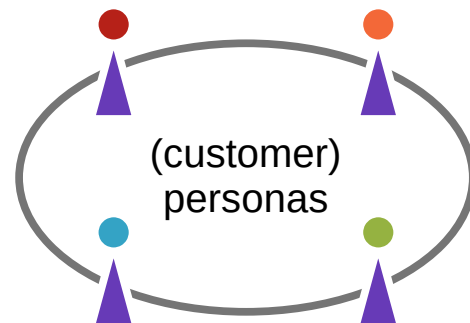
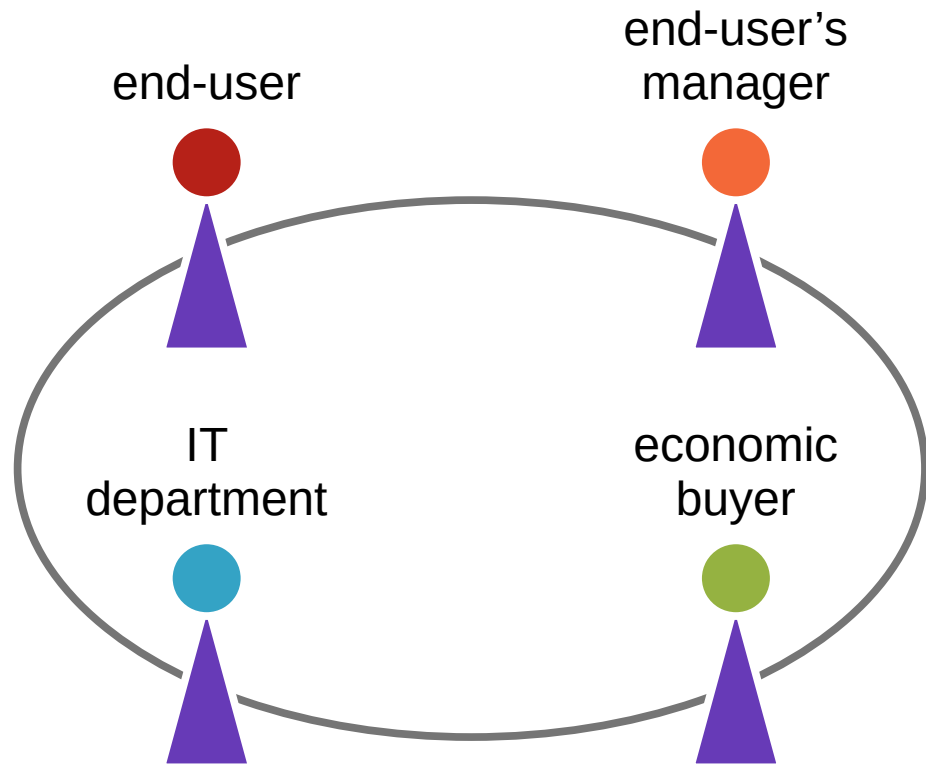




**B04**

# **Business Models**





Customer = user (same legal entity), and economic buyer = end-user



Customer = user (same legal entity), but economic buyer is different from end-user

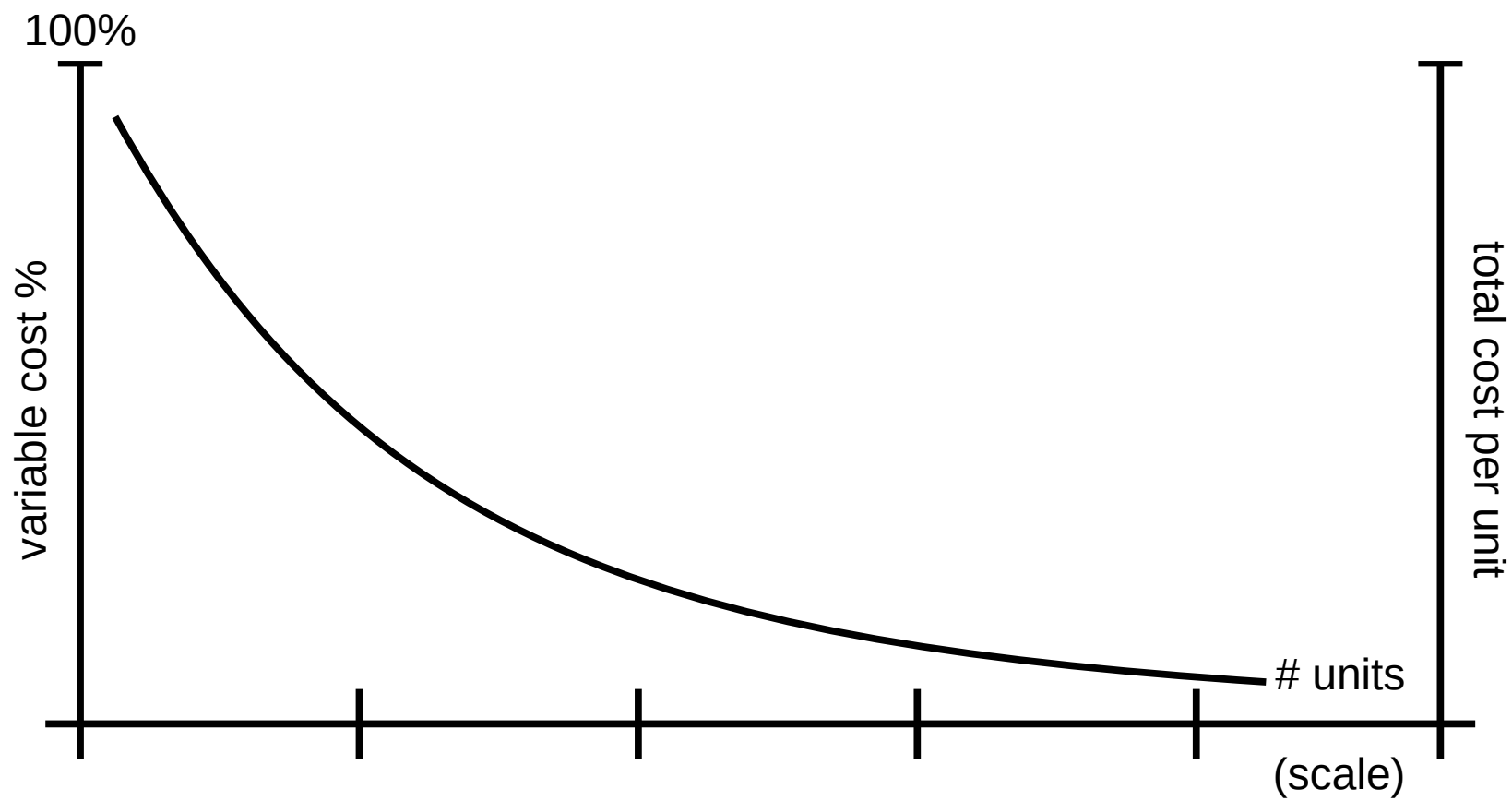


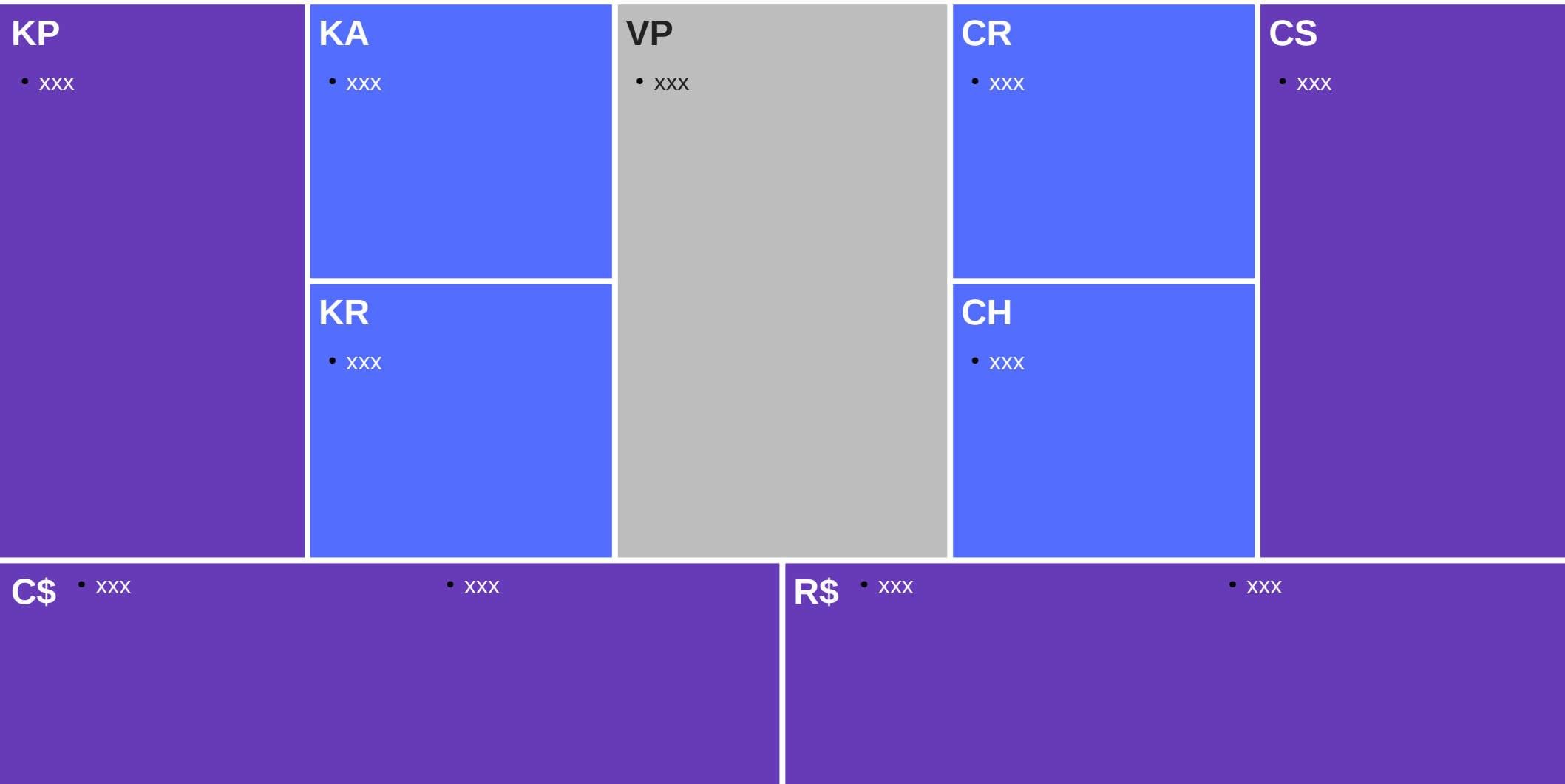
Customer



“User”, i.e. “the product”



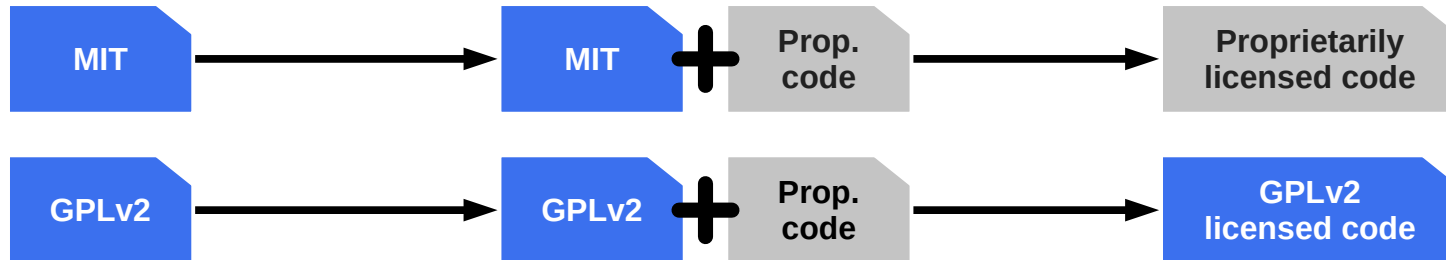


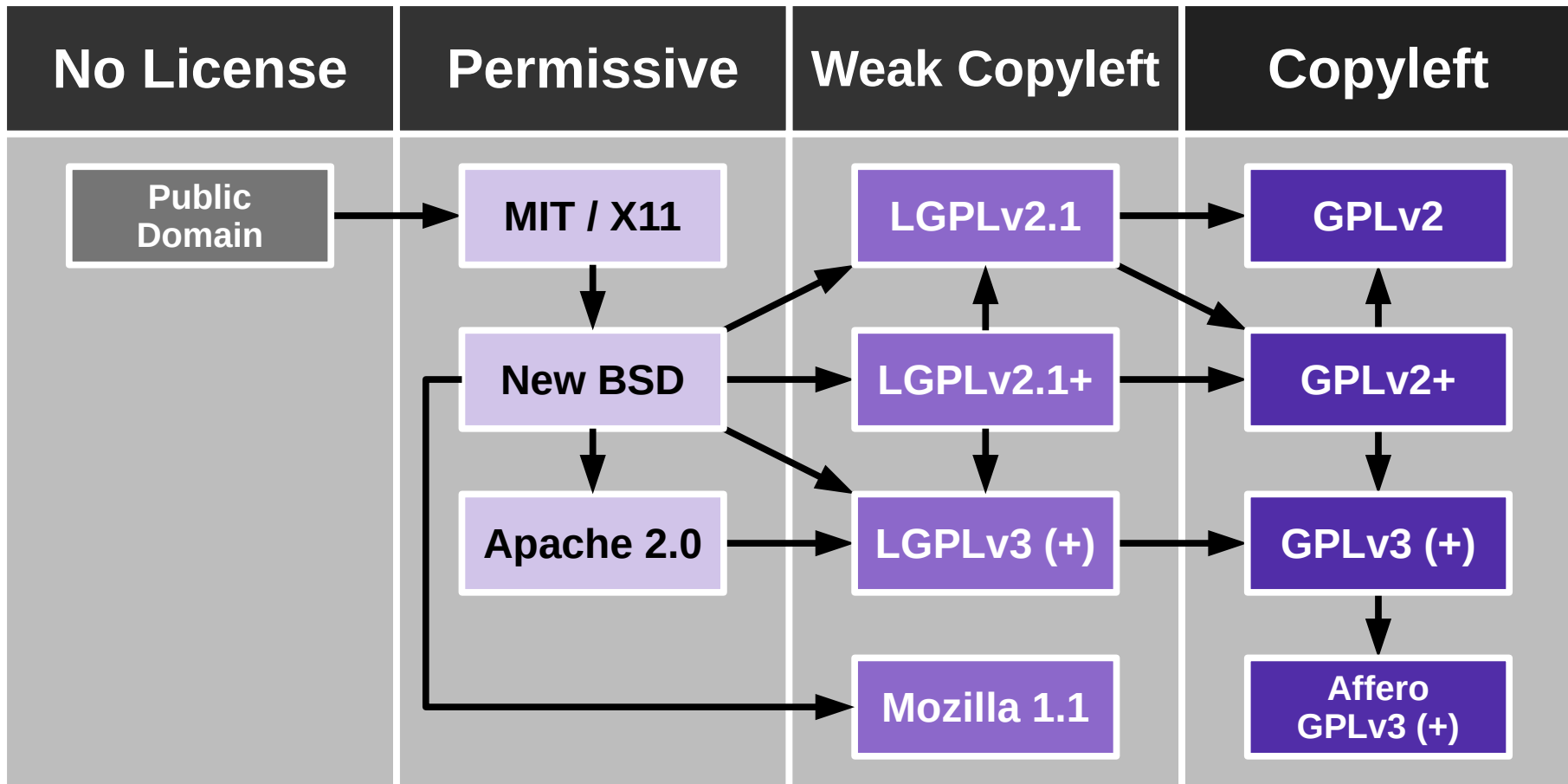


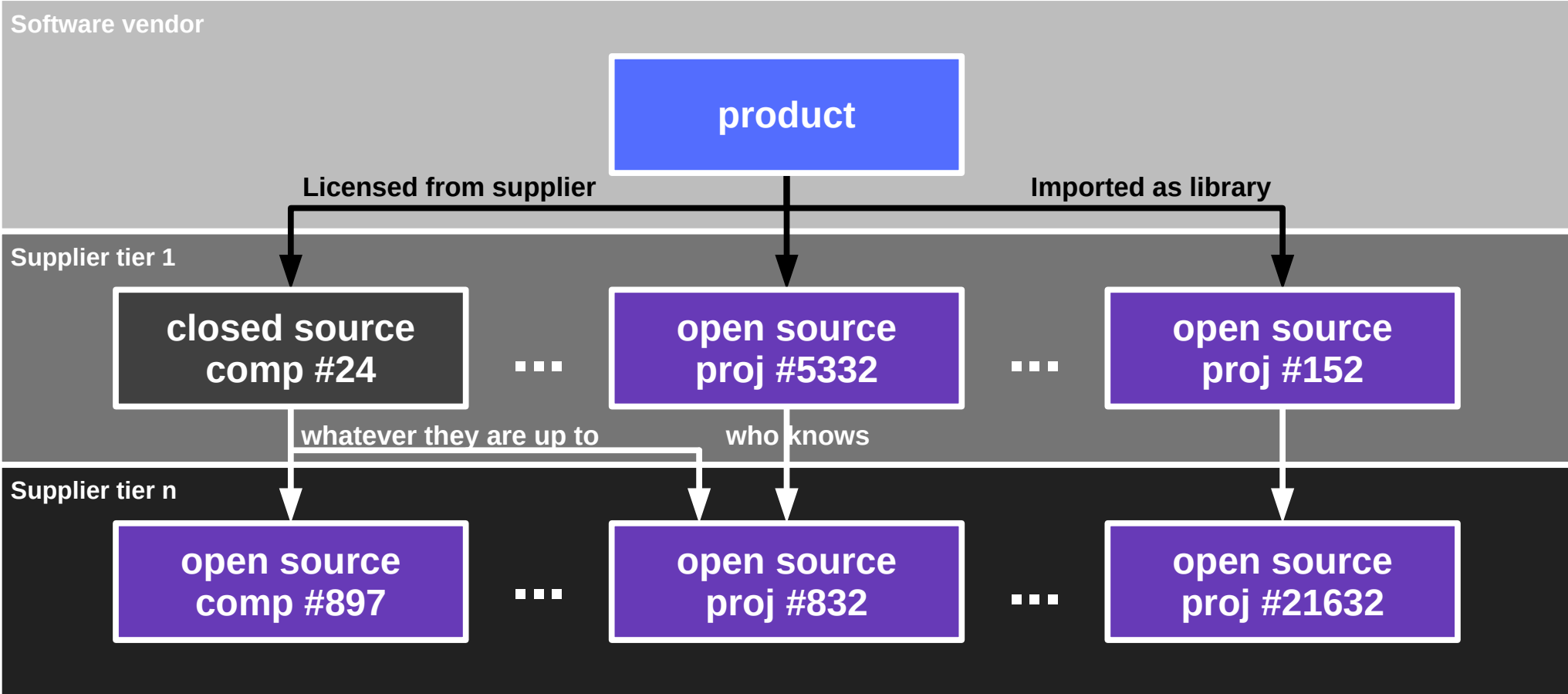


**C01**

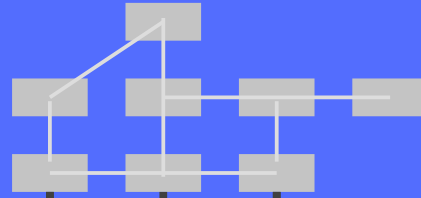
**Open Source Software**



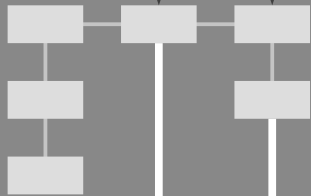




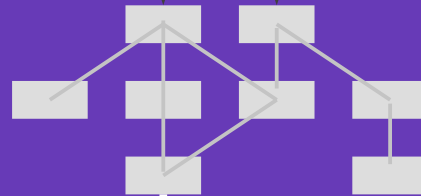
product



closed source  
comp #24



open source  
proj #5332



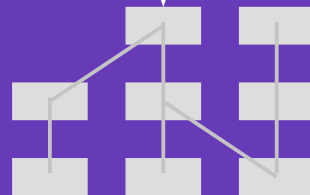
open source  
proj #152



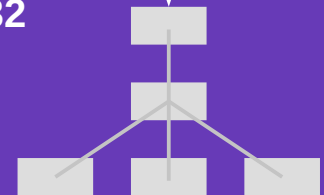
open source  
comp #897



open source  
proj #832



open source  
proj #21632



## User-led consortia (foundations)

2005  
Kuali Foundation

2009  
GenIVI Alliance

## Single-vendor open source firms

1995  
MySQL

2004  
SugarCRM, Jaspersoft, Hyperic, ...

## Developer-led foundations (Natural persons and vendors)

1999  
Apache Software Foundation

2004 Eclipse Foundation

2007  
Linux Foundation

## Open source distributor firms

1992  
Suse

1994  
Red Hat

2002  
Univention

2004  
Canonical

## Service and support firms

1989  
Cygnus Solutions

2005  
Automattic

2009  
MariaDB

2011  
Hortonworks

1984  
GNU Emacs

1987  
GCC

1991  
Linux kernel

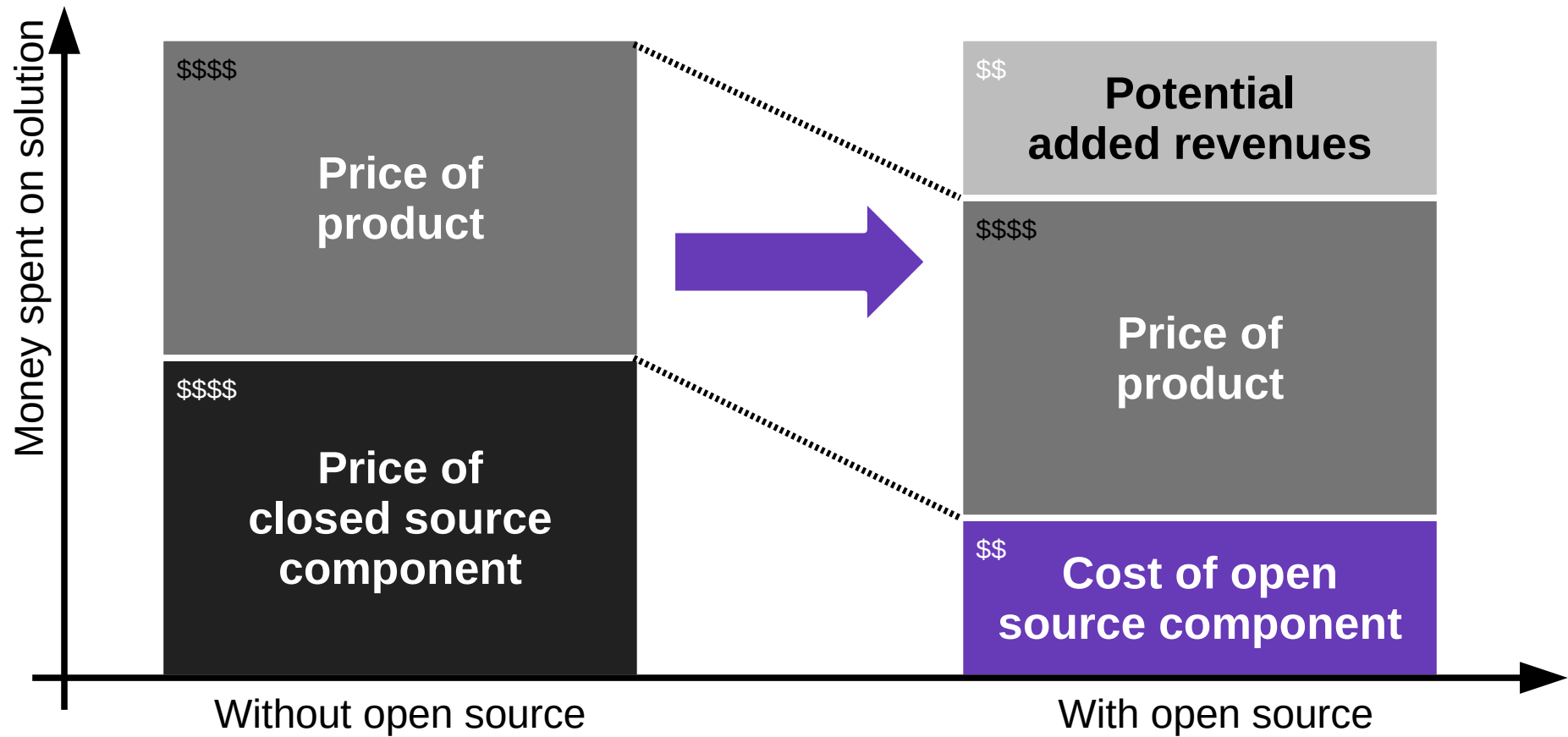
1993  
Debian

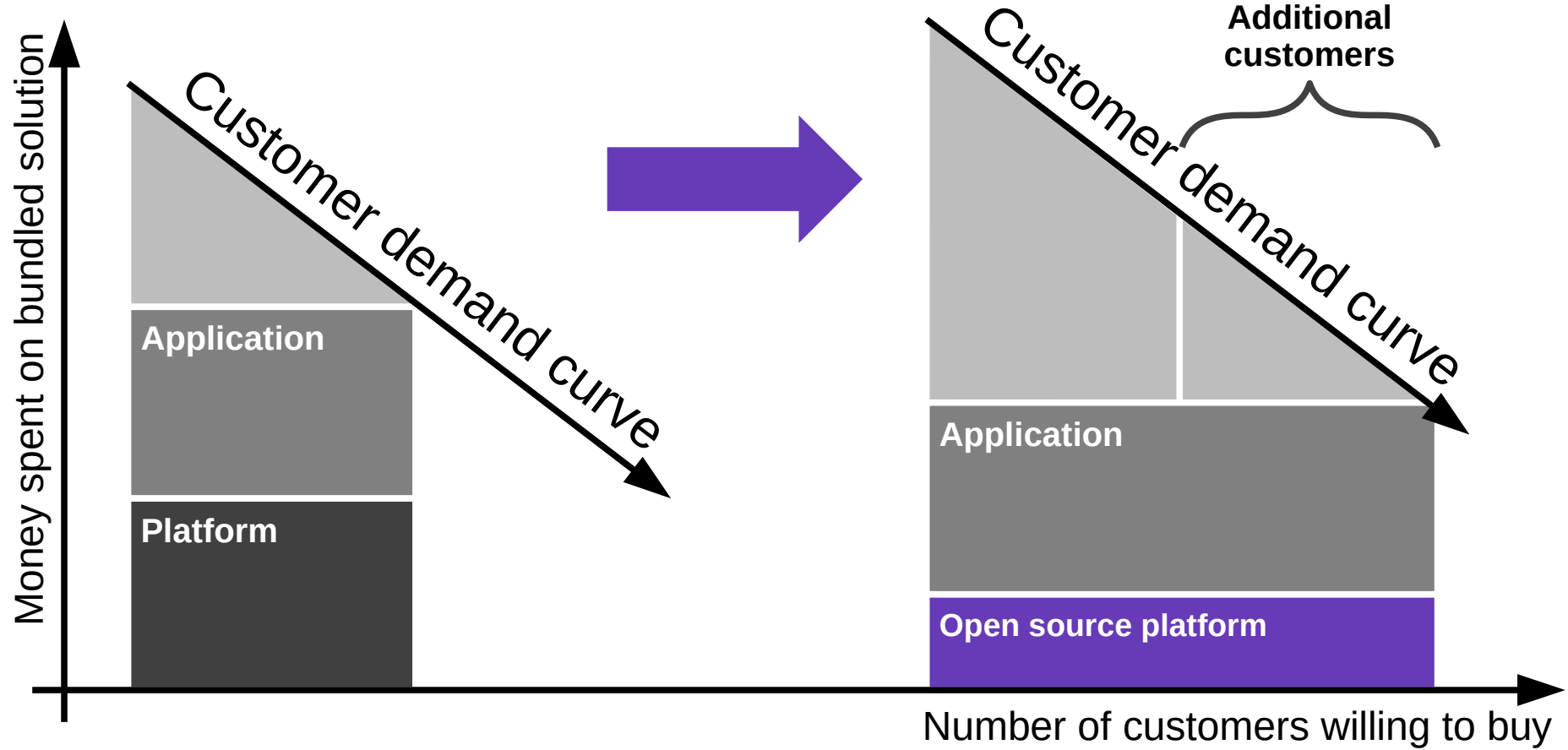
1996  
PostgreSQL

2004  
CentOS

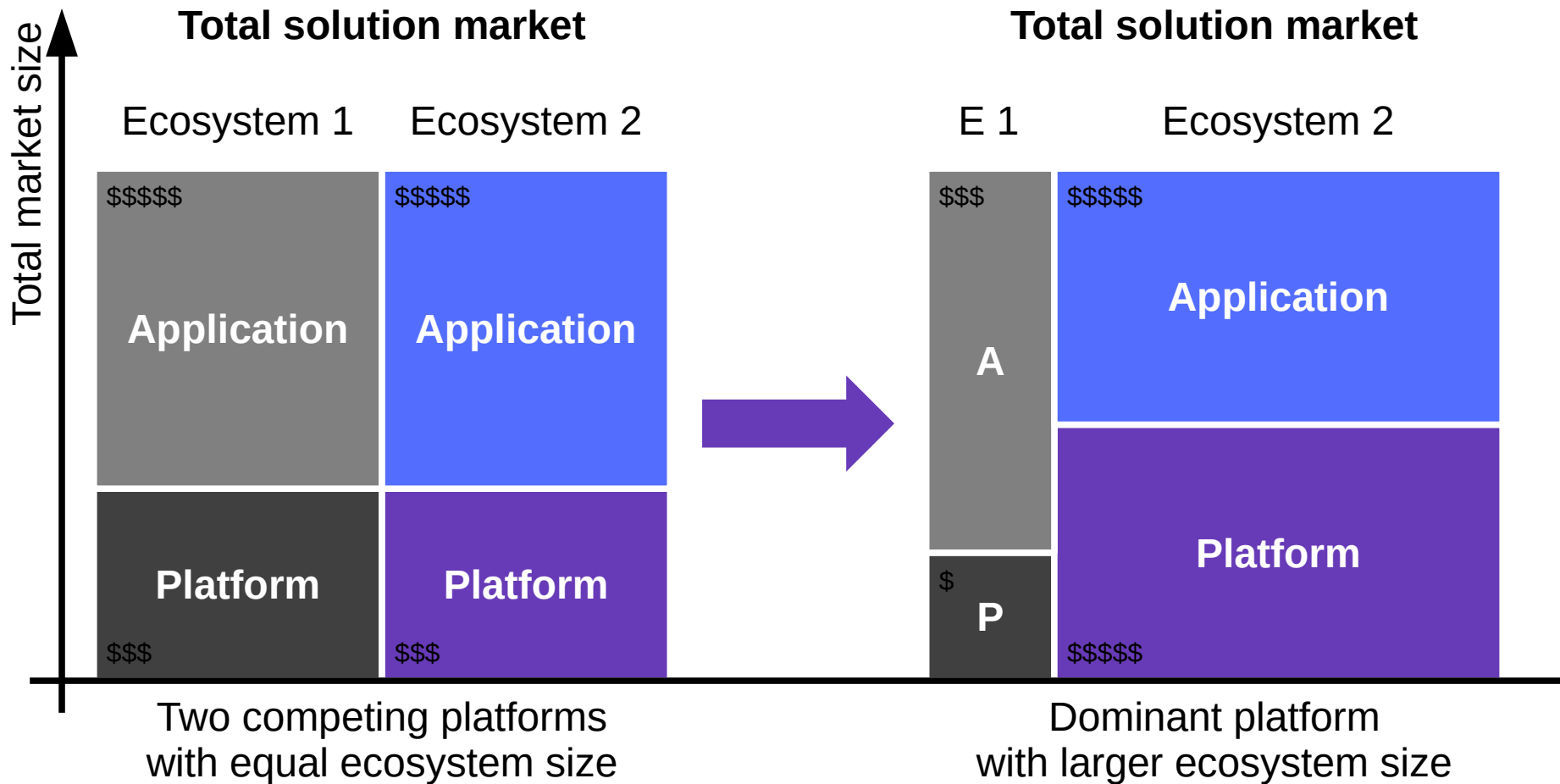
## Traditional community projects

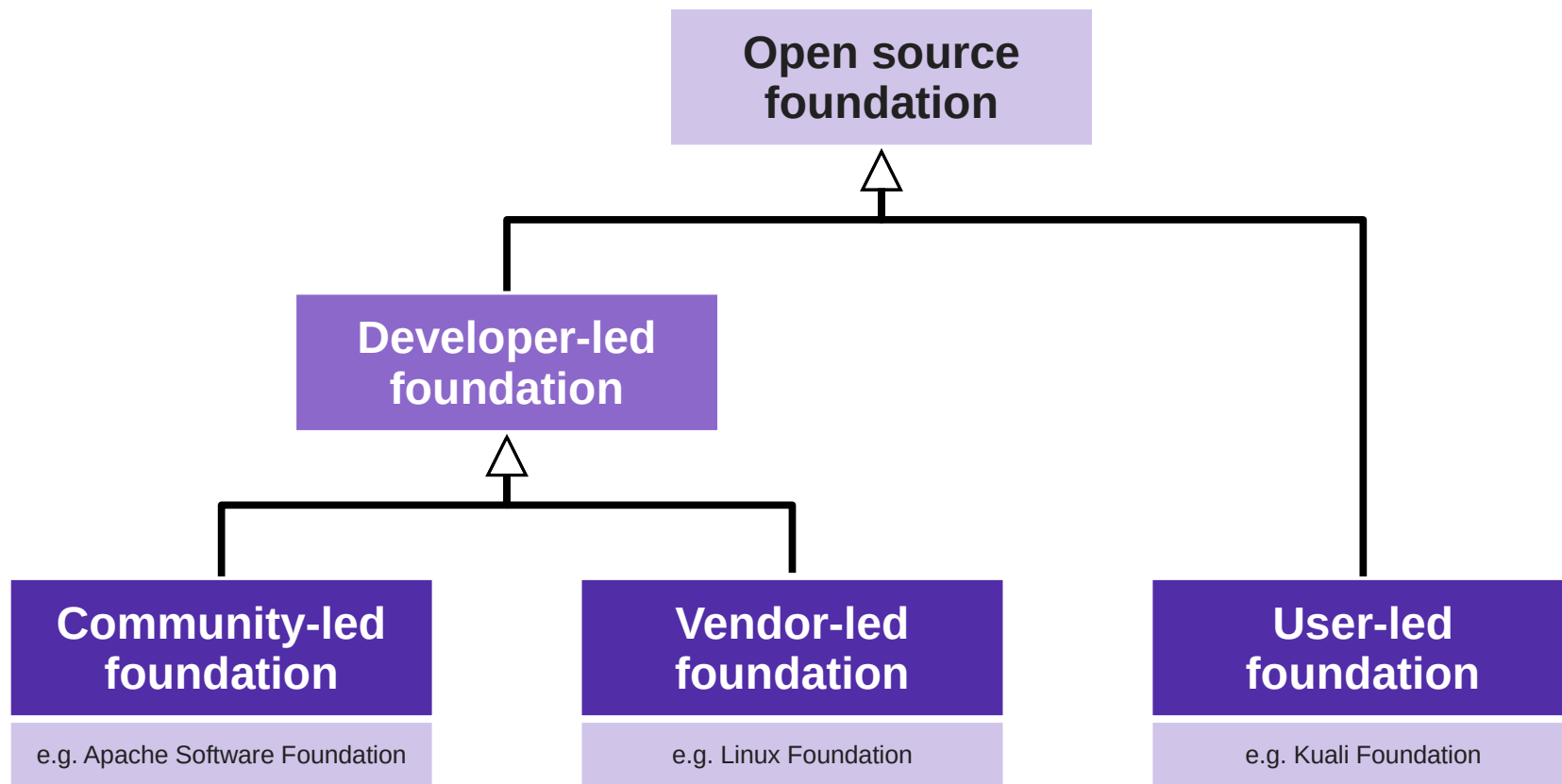
year

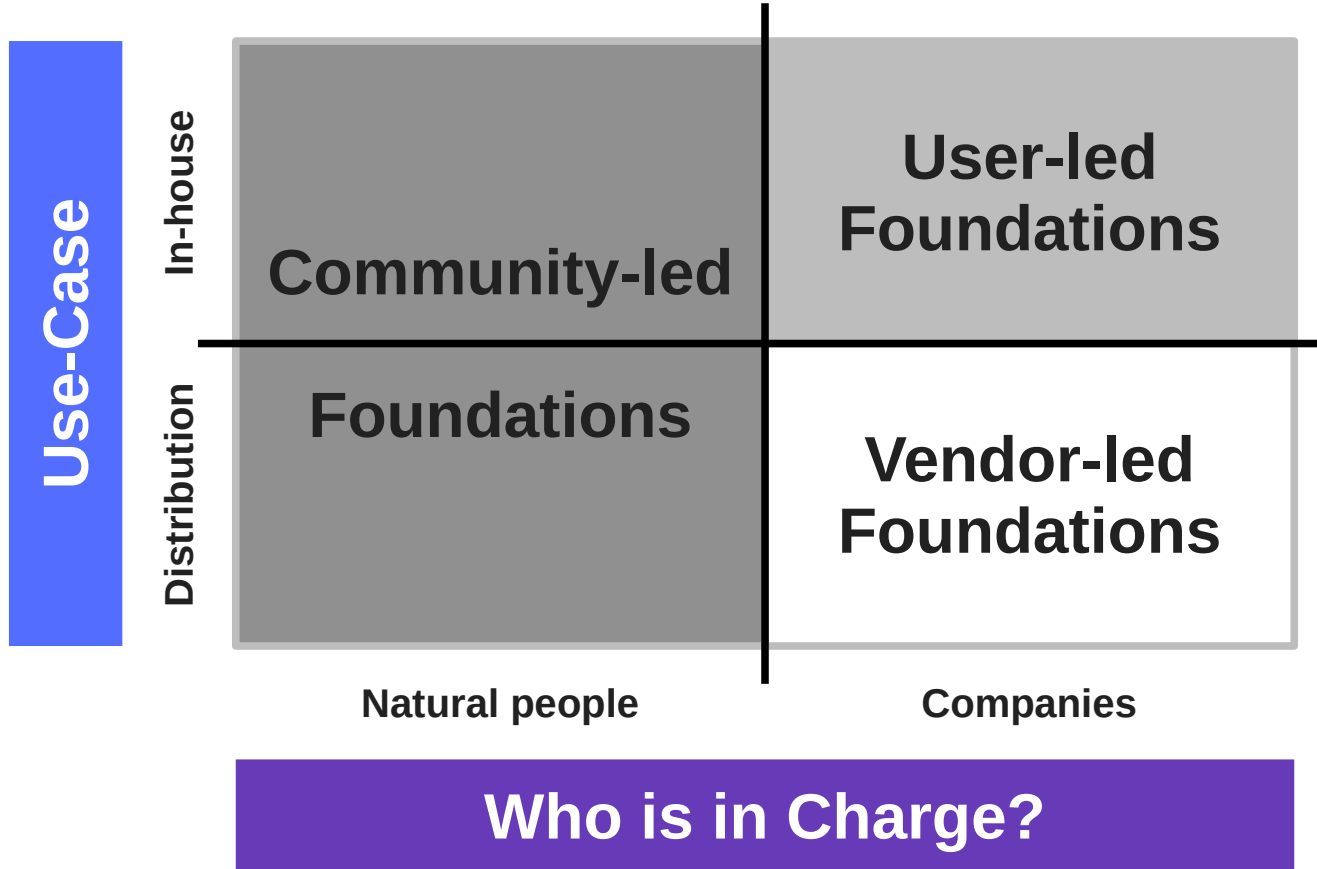






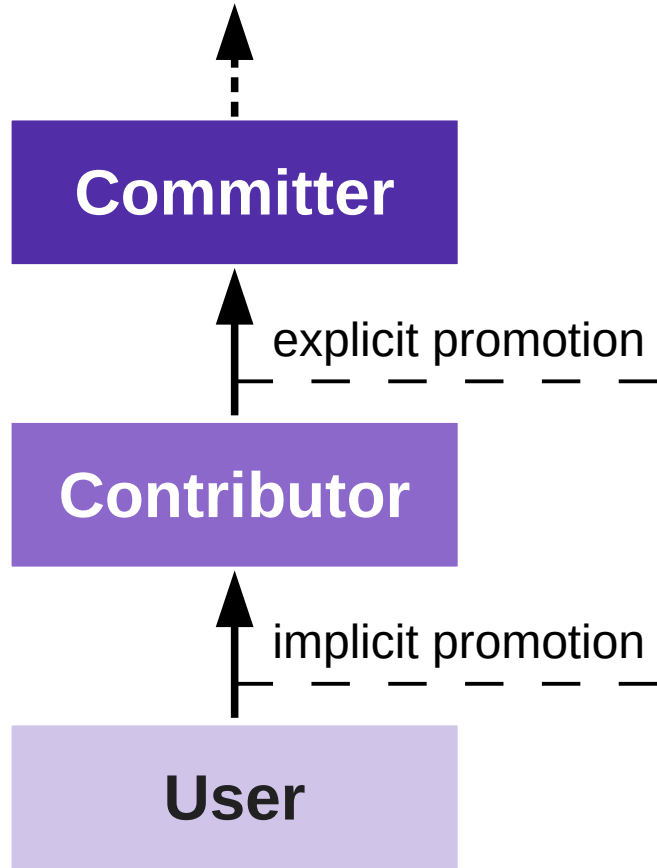


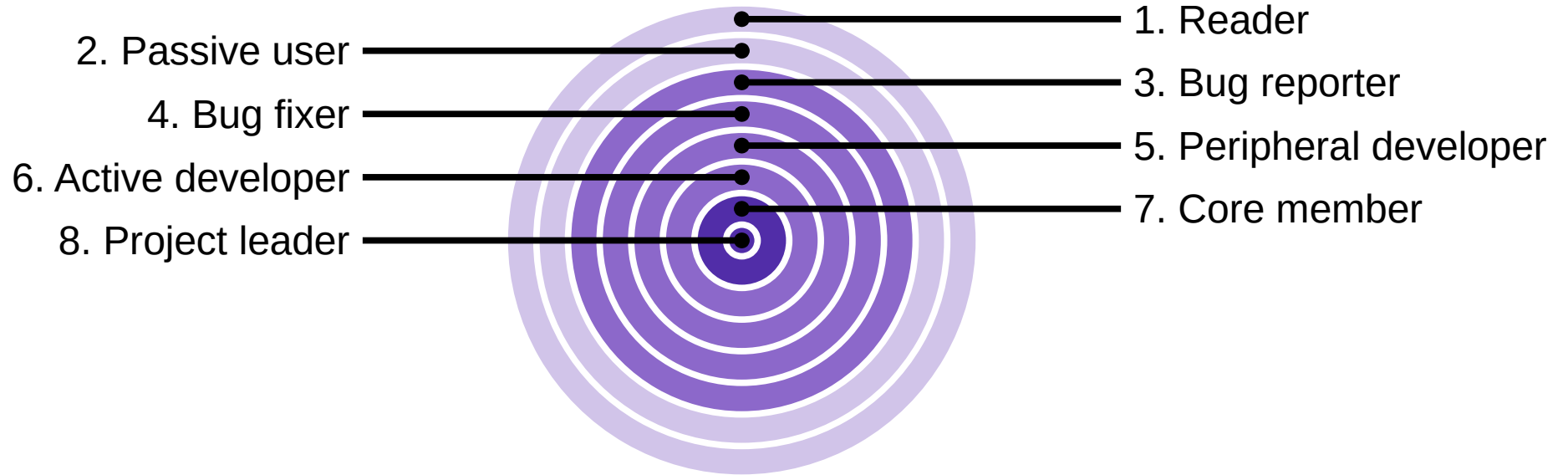




**C02**

**Open Source Projects**

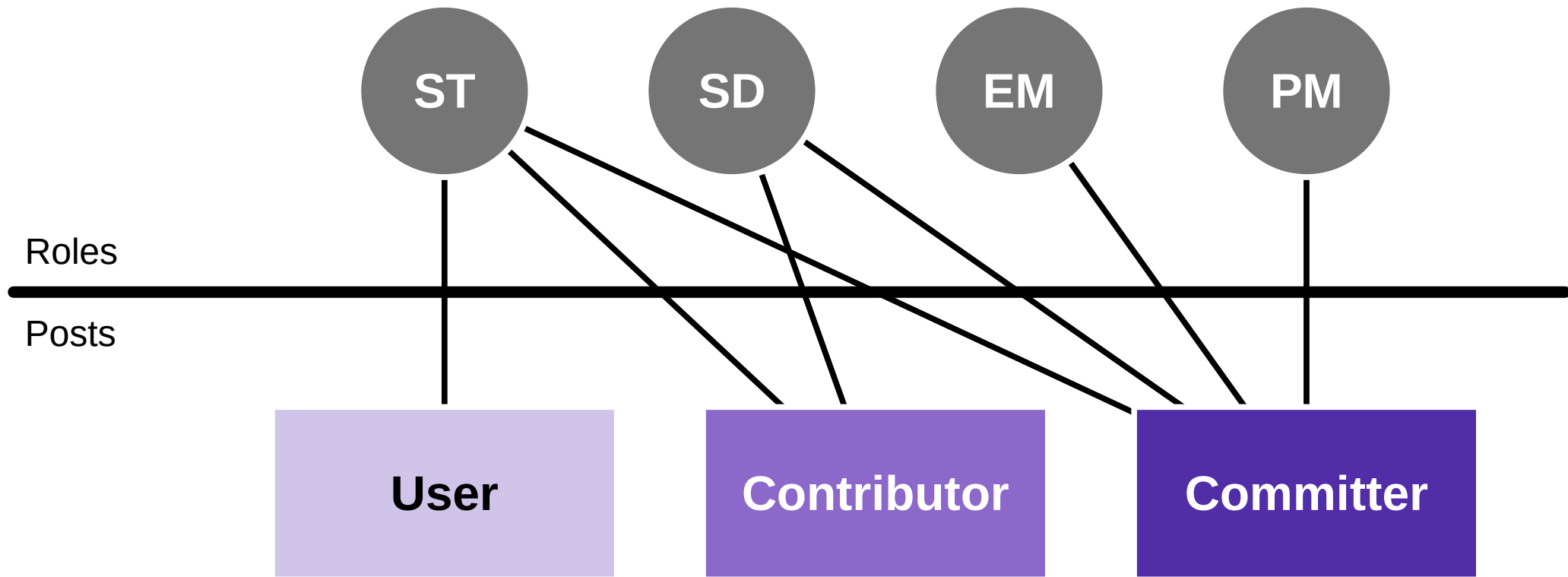




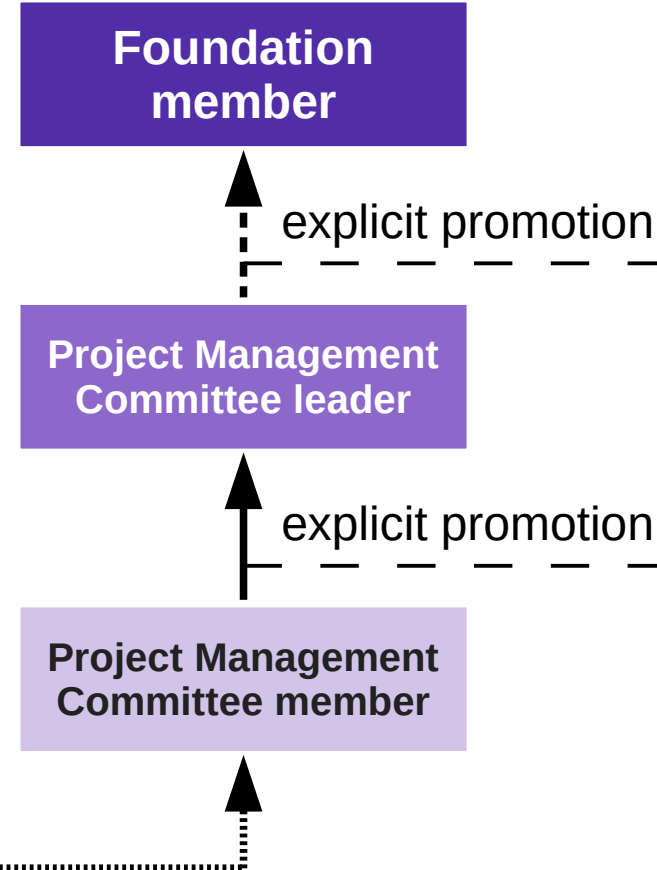
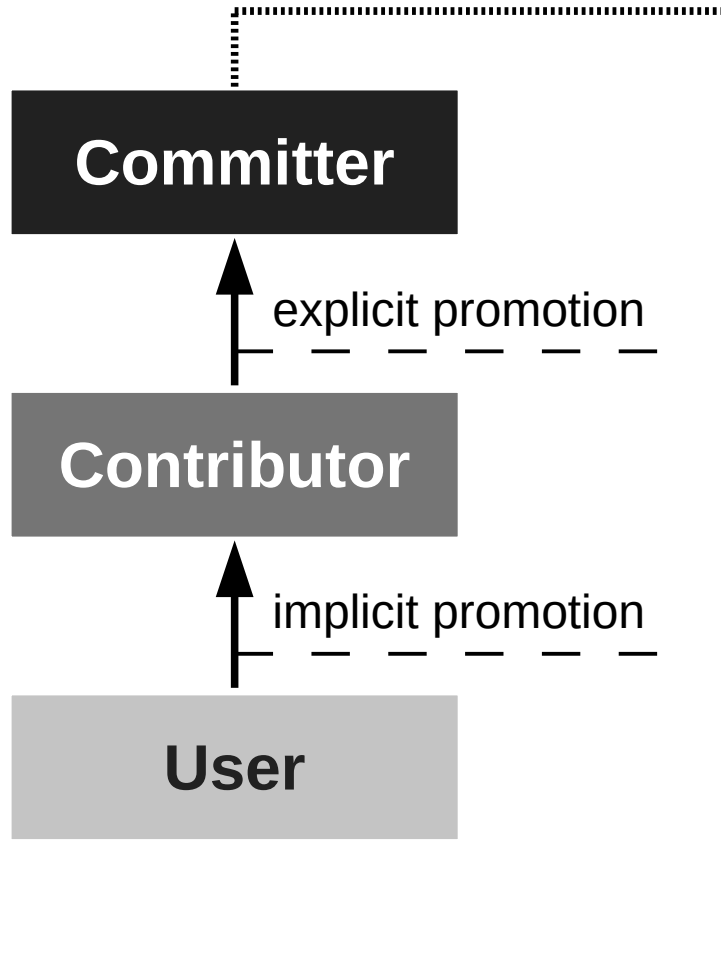
**User**

**Contributor**

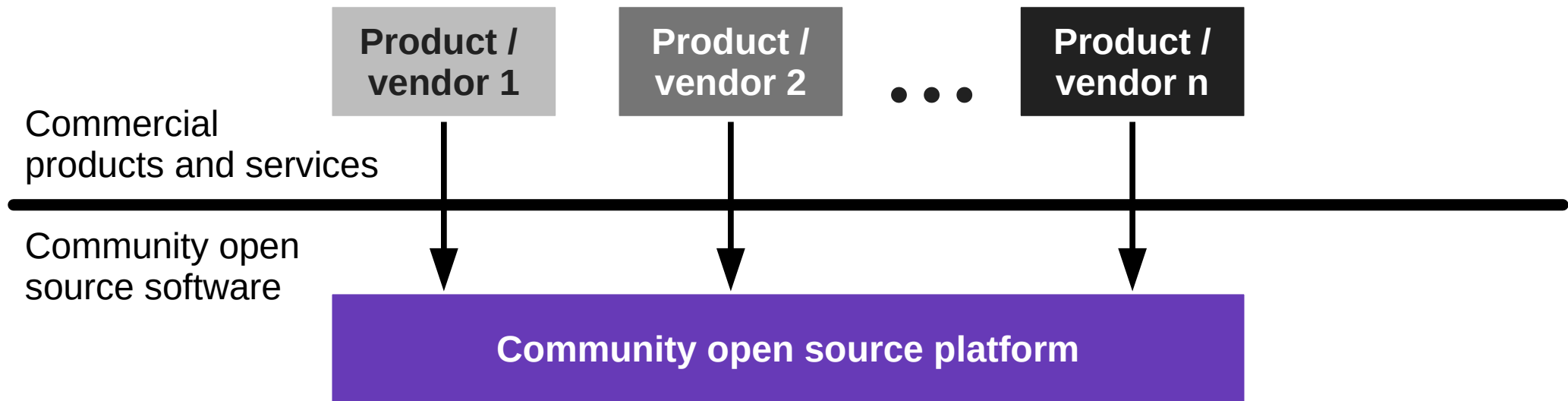
**Committer**



ST = Software tester  
SD = Software developer  
EM = Engineering manager  
PM = Product manager



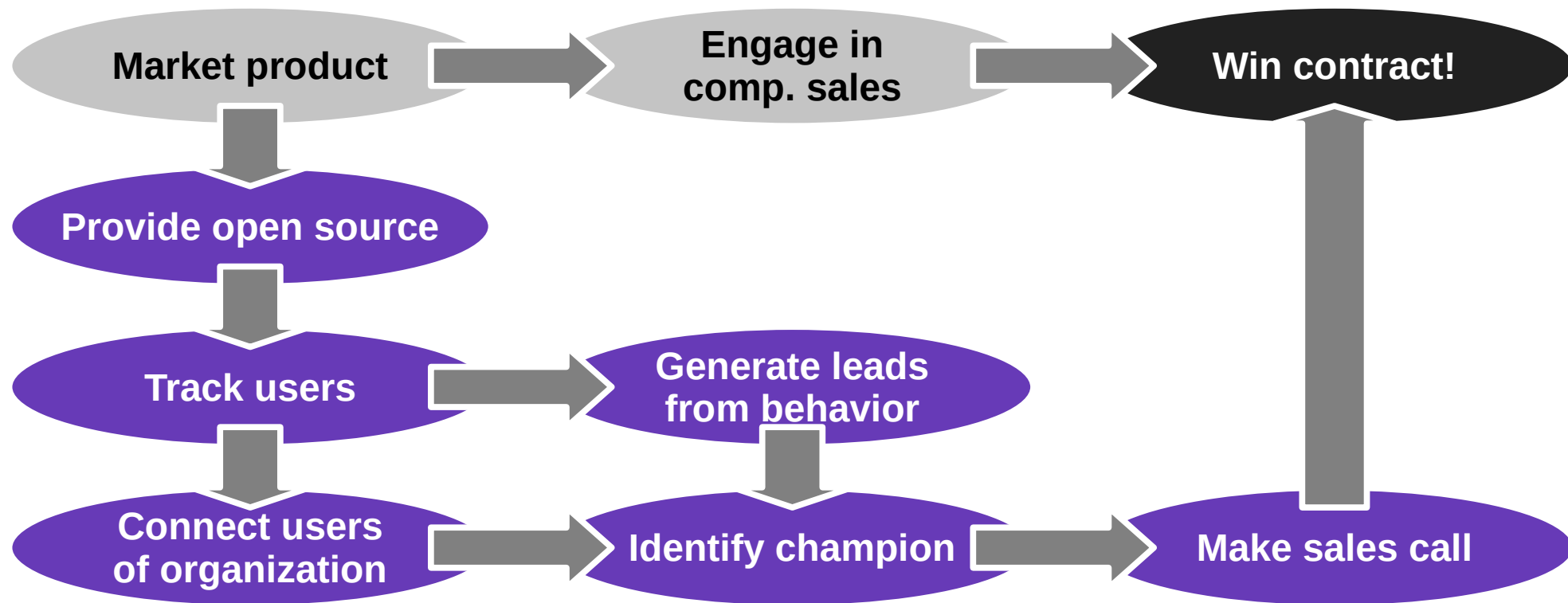




**D01**

**Commercial Open Source**

	Web Store	Direct Sales	
Open Source Community	<div>DOC</div> <div>INC</div> <div>UTIL</div>		<div>DOC</div> Documentation
Enterprise Customers		<div>LIC</div> <div>DOC</div> <div>UPD</div> <div>TRN</div> <div>UTIL</div> <div>24x7</div>	<div>INC</div> Incident-based support <div>UTIL</div> Utilities <div>LIC</div> Commercial license <div>UPD</div> Update service
ISV / OEM		<div>LIC</div> <div>DOC</div> <div>UTIL</div> <div>TRN</div> <div>24x7</div>	<div>TRN</div> Training           ... <div>24x7</div> 24x7 hotline



**D02**

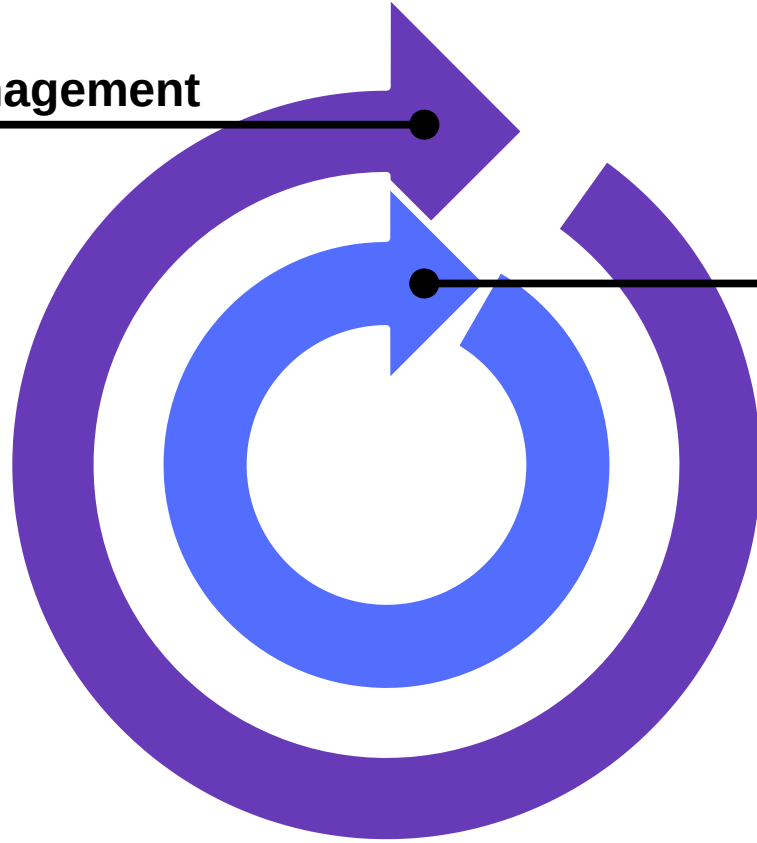
# **Product Strategies**

**Strategic product management**

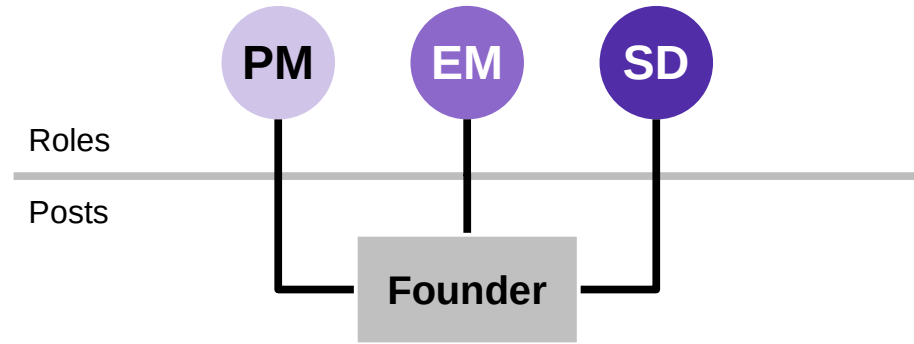
---

**Technical  
product management**

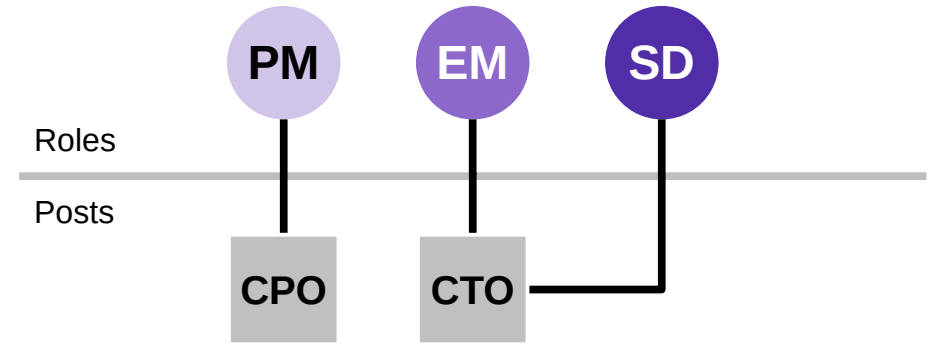
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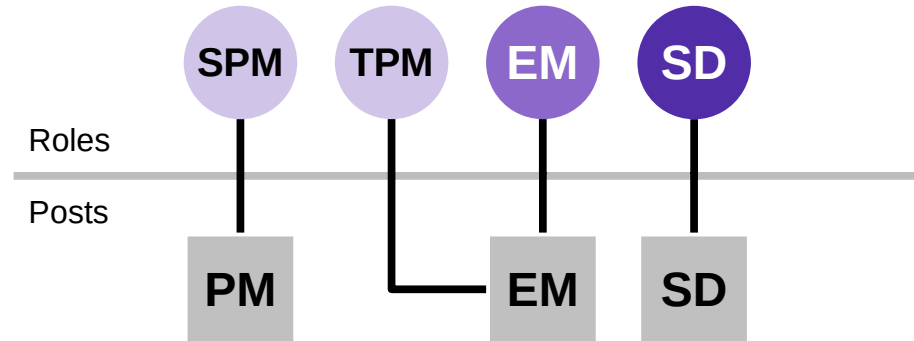
### Solo entrepreneur



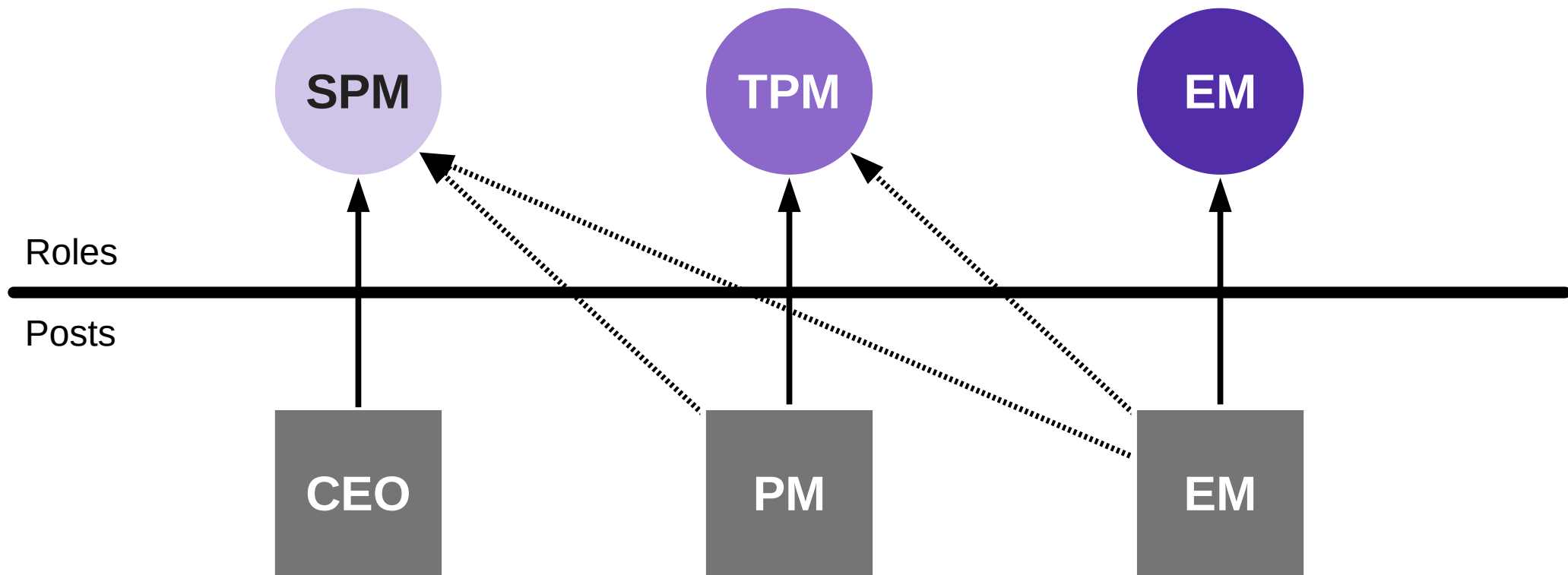
### Team-based startup



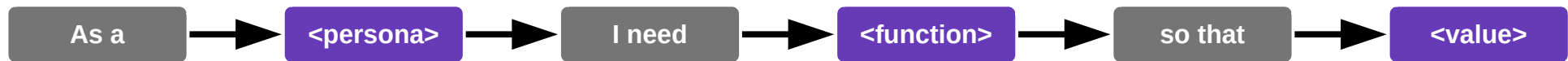
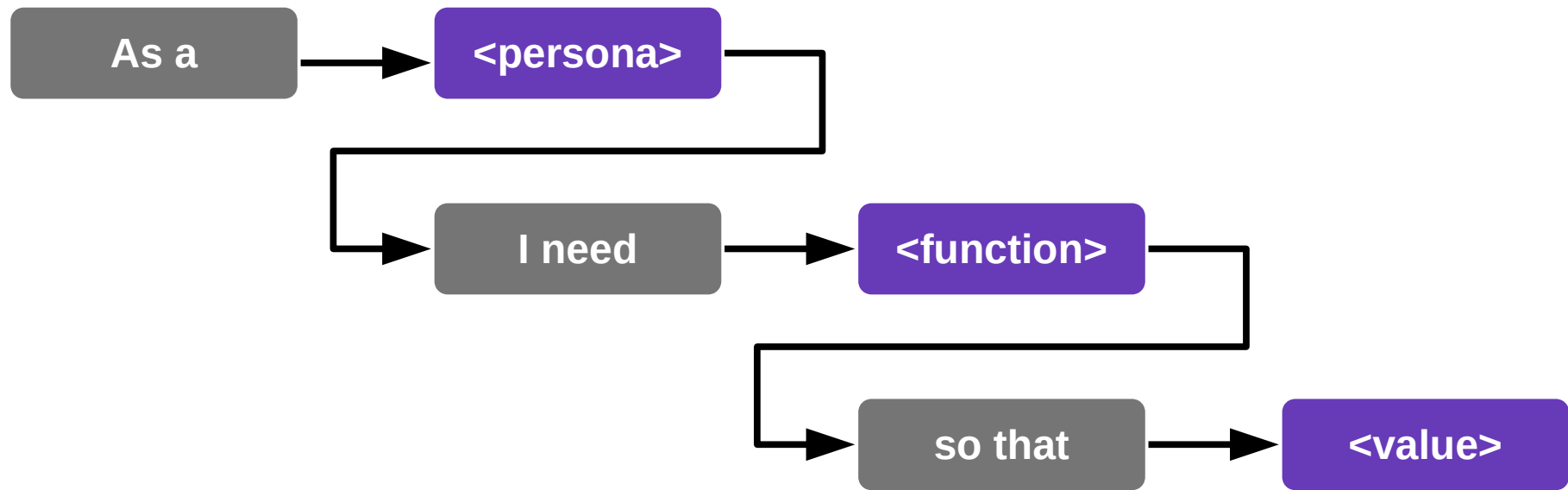
### Mature vendor

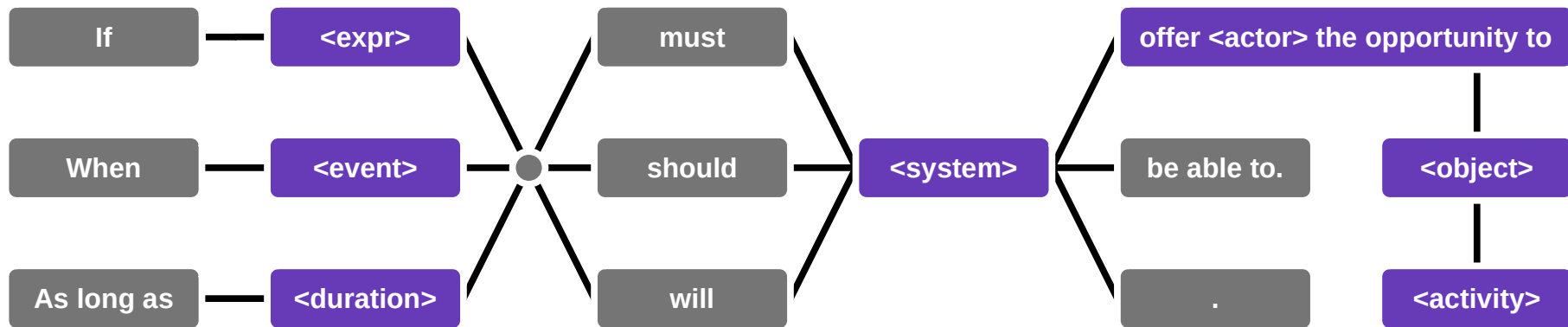


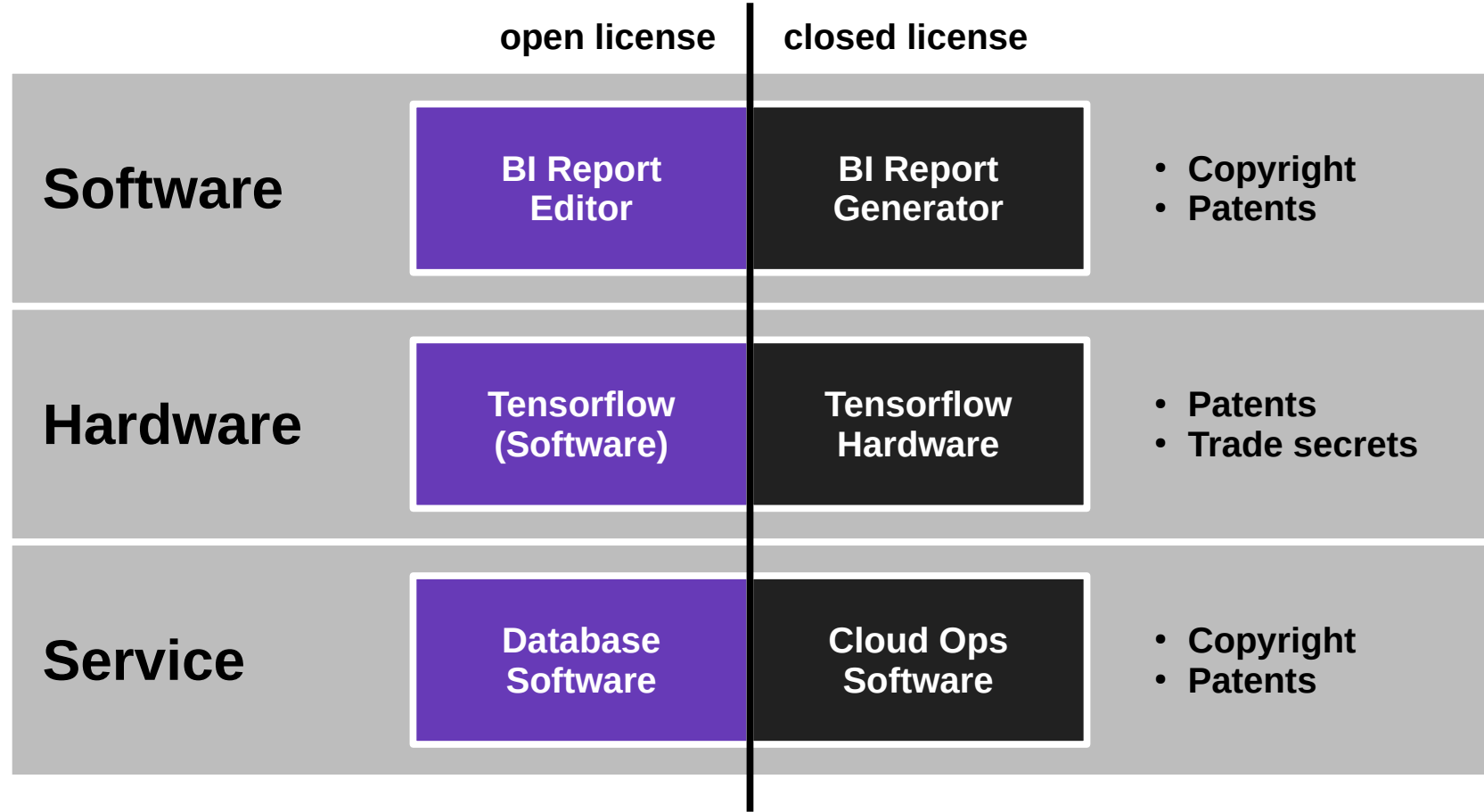
PM = Product manager (strategic + technical)  
SPM = Strategic product manager  
TPM = Technical product manager  
CPO = Chief Product Officer  
EM = Engineering manager  
VPE = VP of engineering  
CTO = Chief Technology Officer  
SD = Software developer

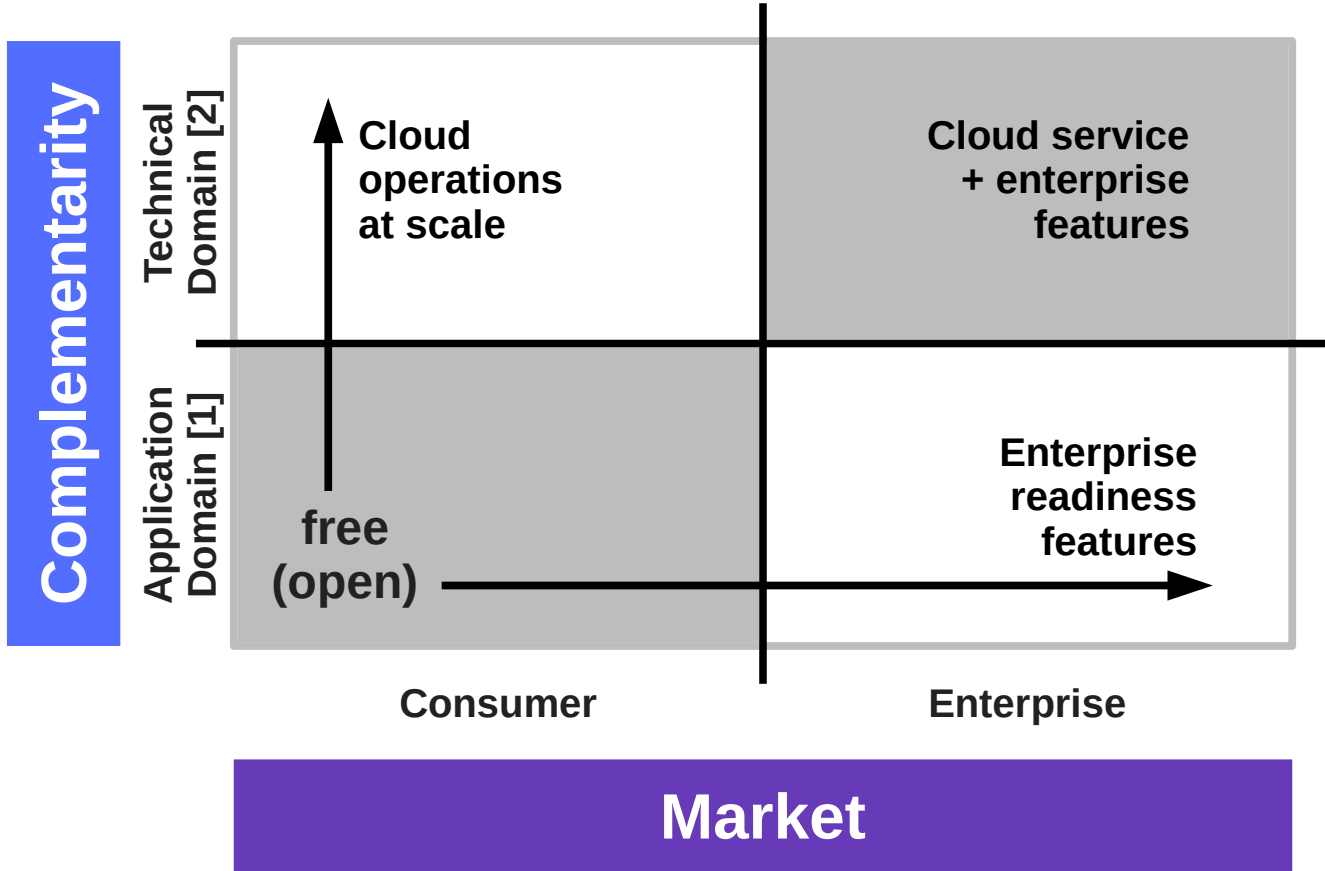








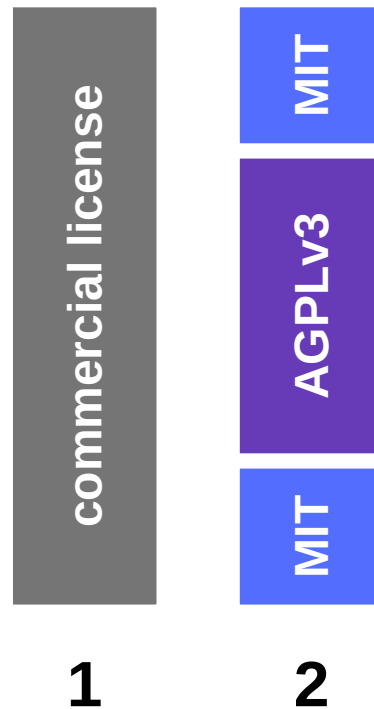




## Application

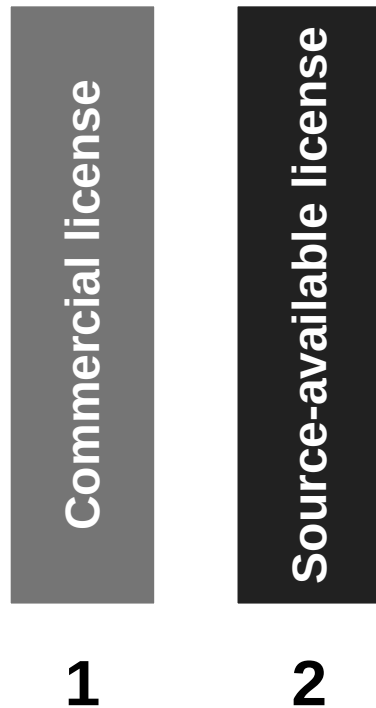


## Component



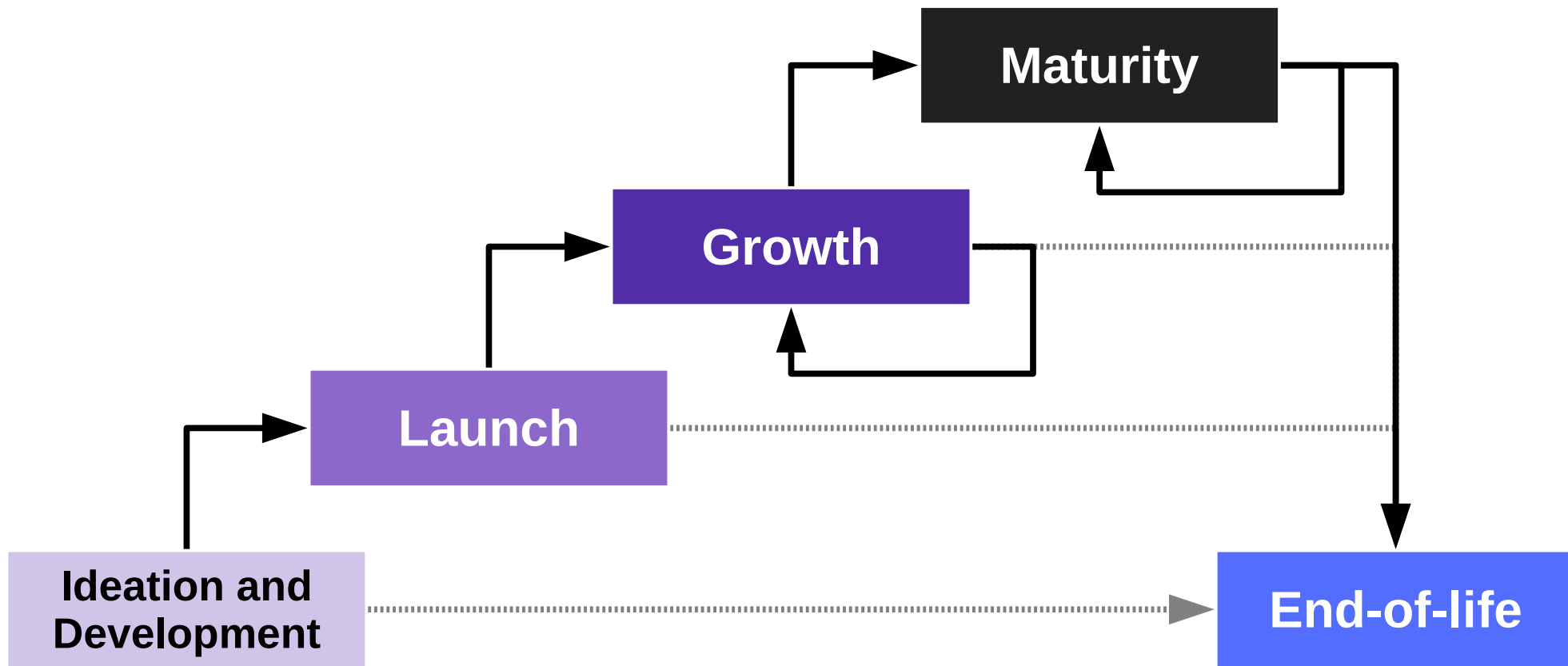
Deployment			
	In-the-cloud	AGPLv3	APGLv3 + shims
	On-premise	AGPLv3	GPLv2
		Application	Component
Product Type			

## Dual-Licensing



## Triple-Licensing

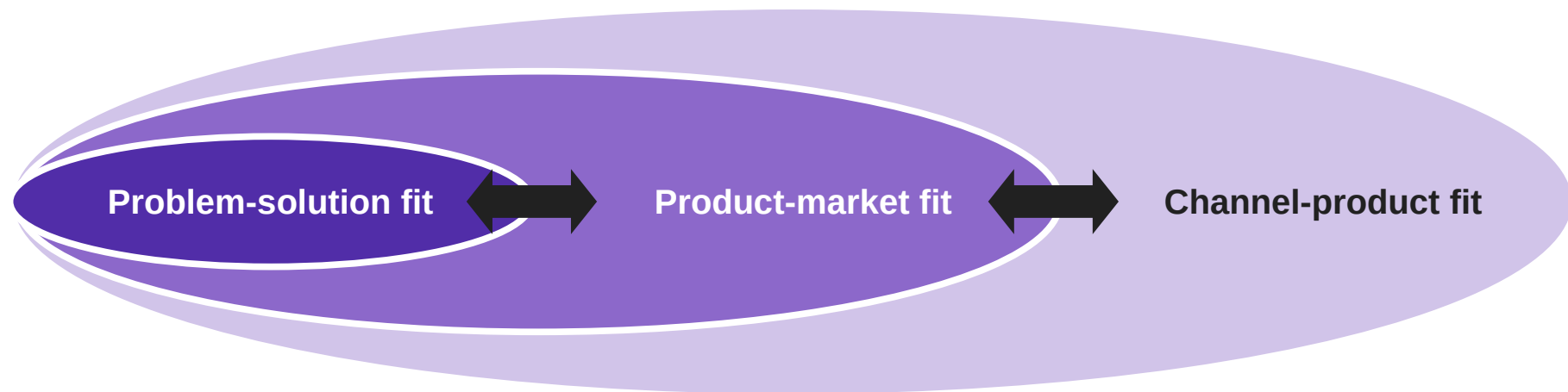


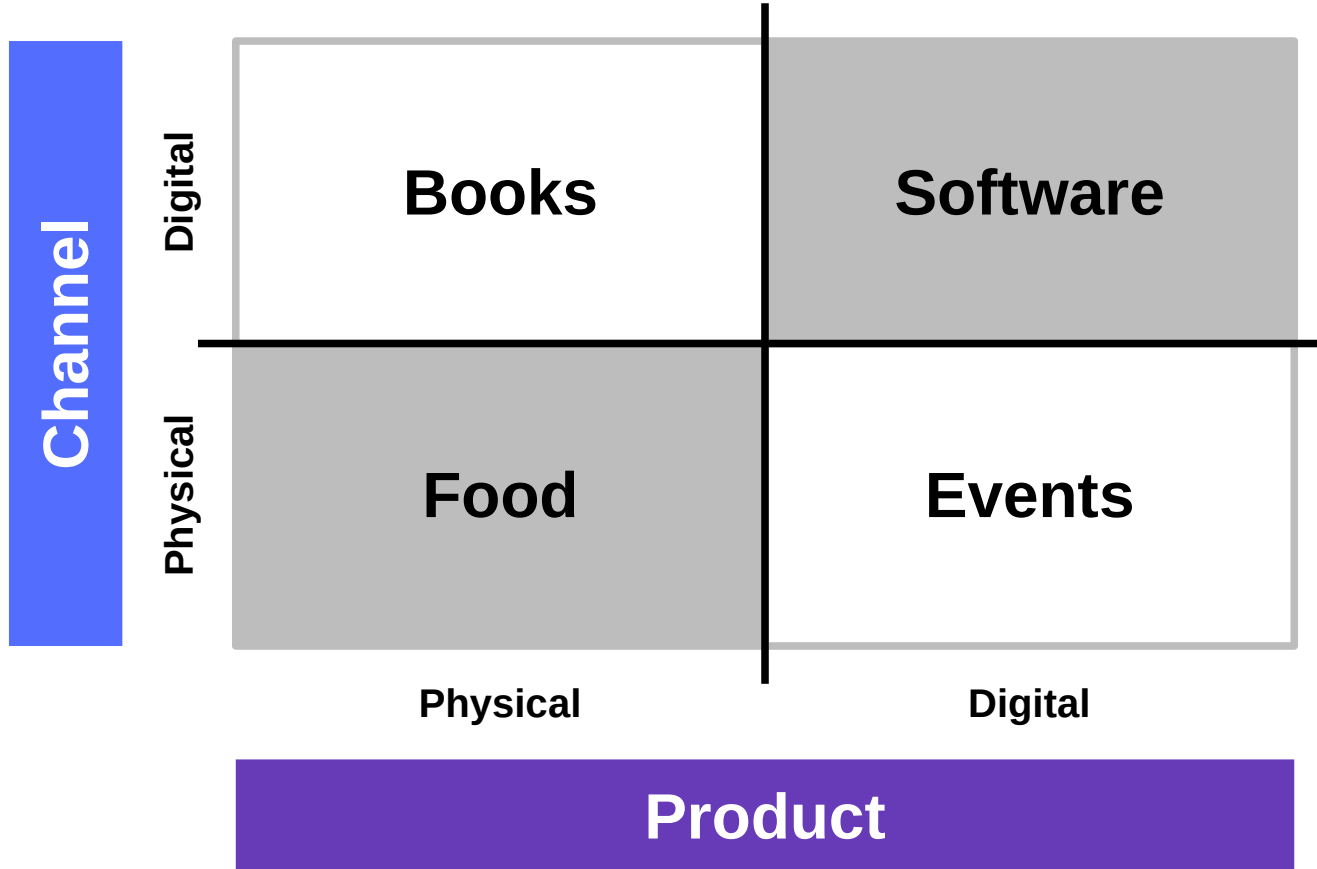


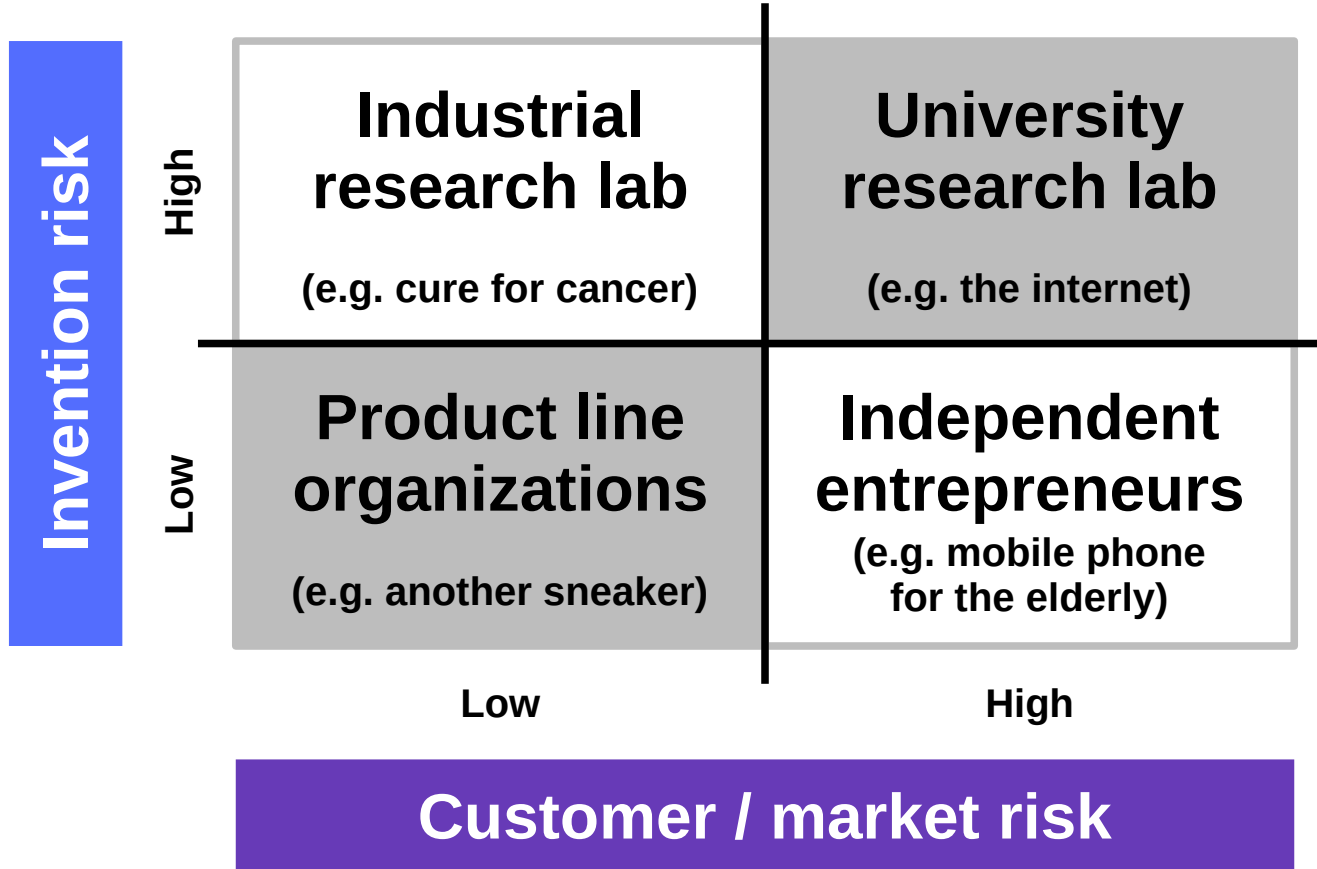


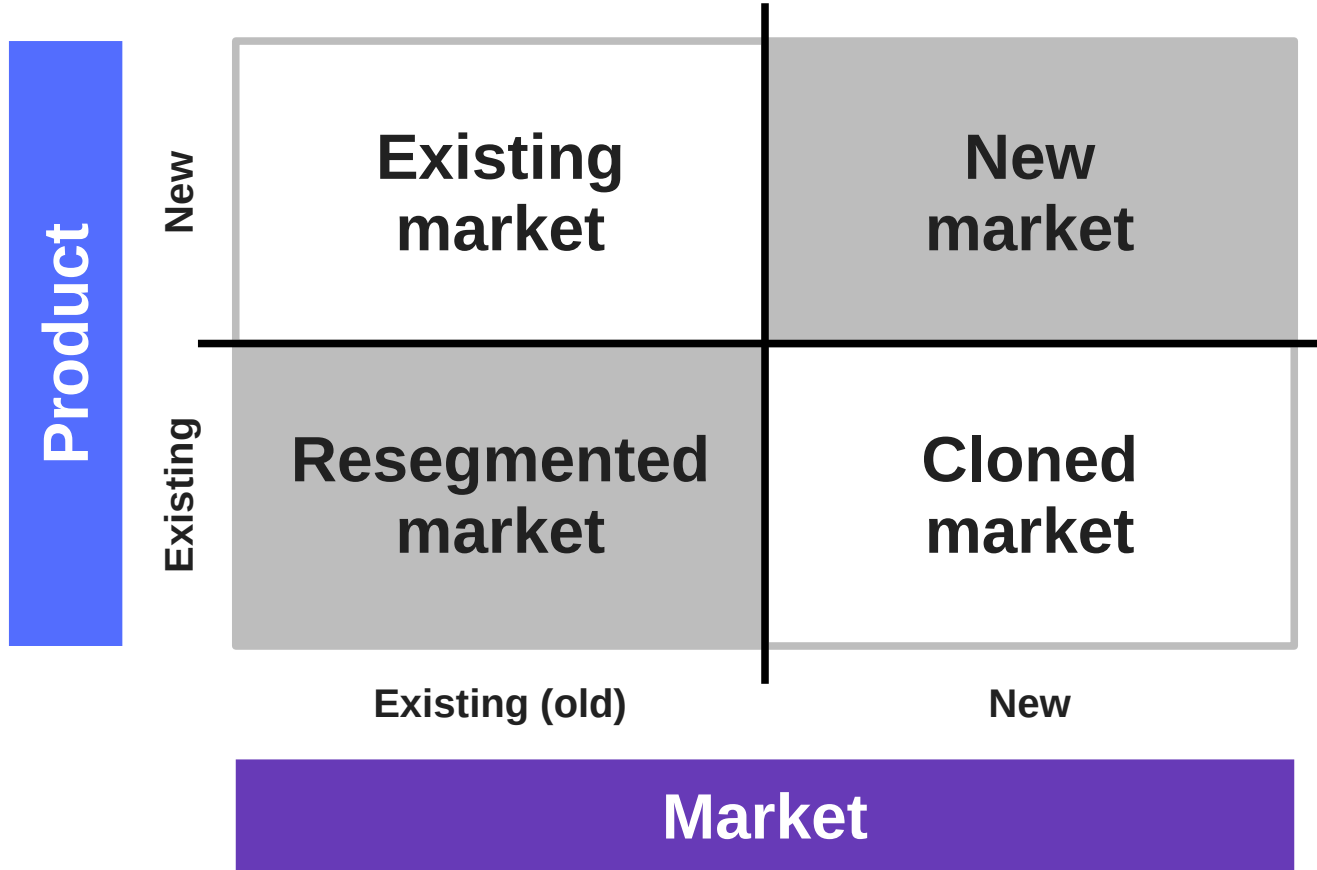
**D01**

# **Software Startups**









## Search

**Customer  
discovery**

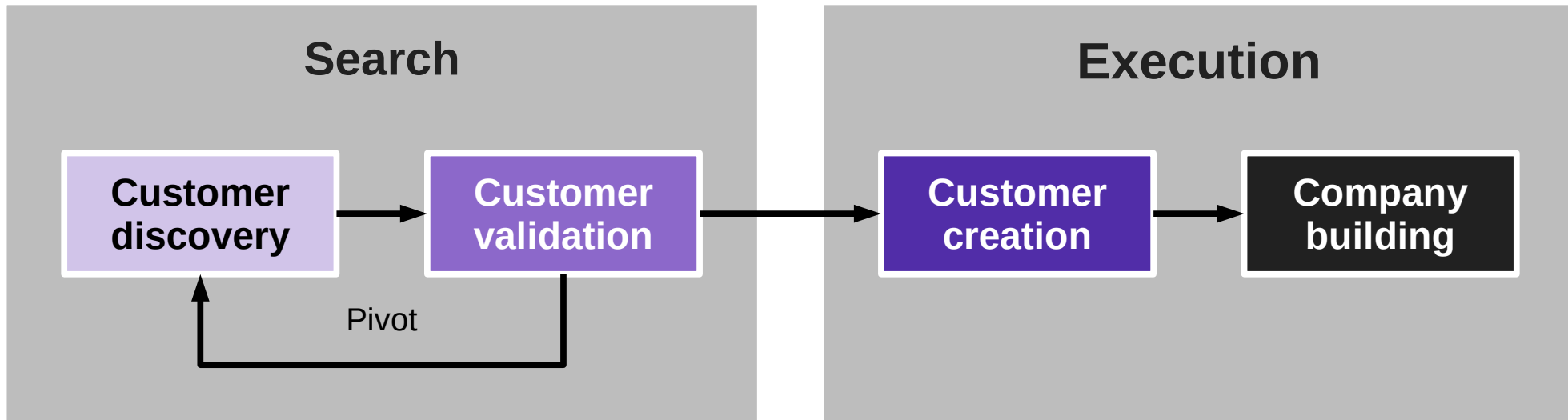
**Customer  
validation**

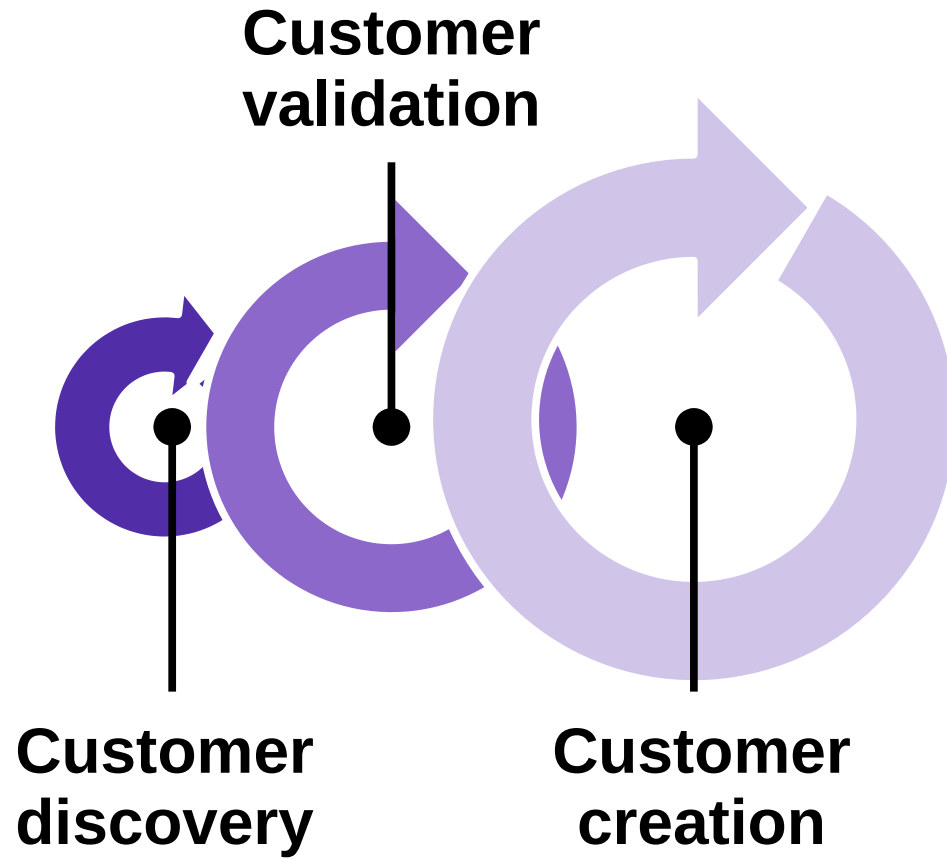
Pivot

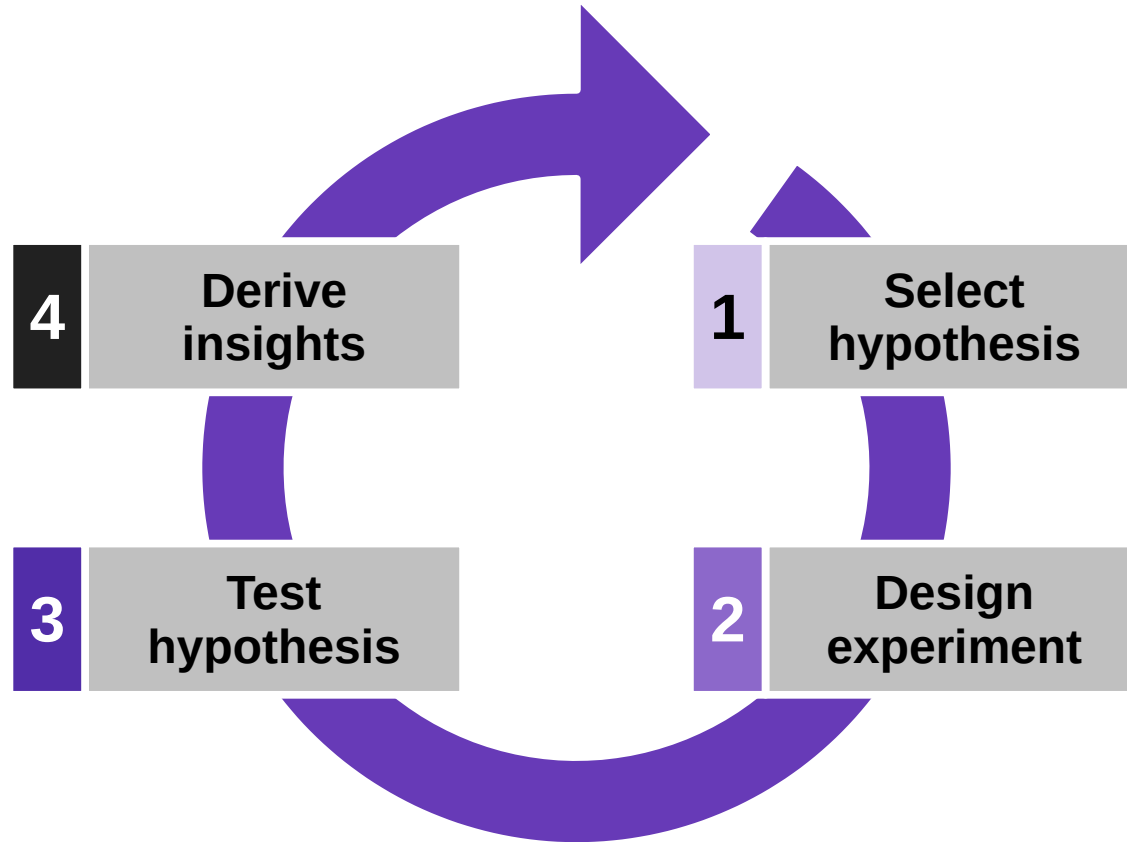
## Execution

**Customer  
creation**

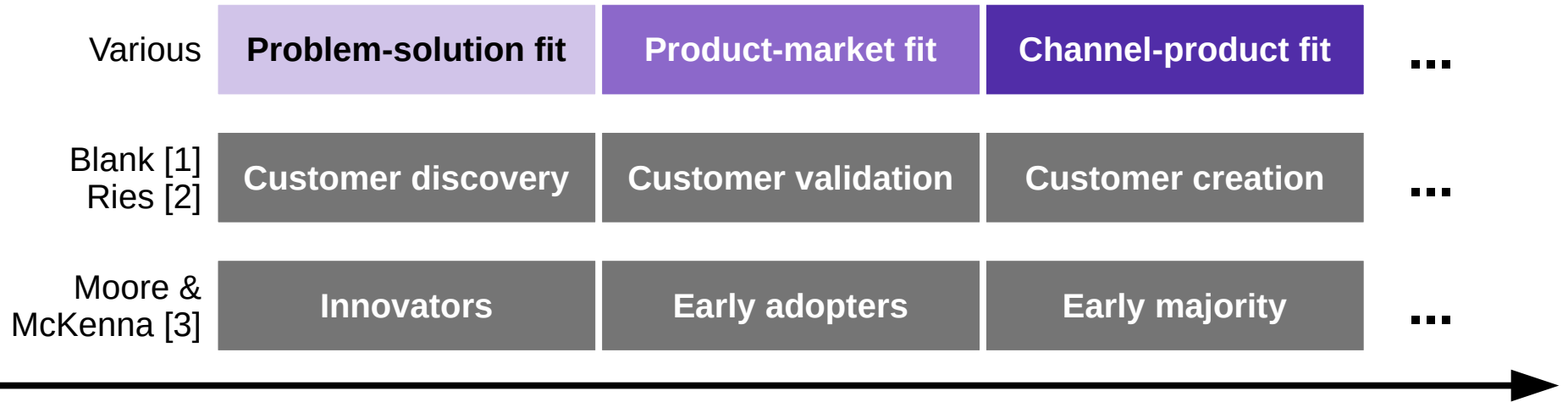
**Company  
building**











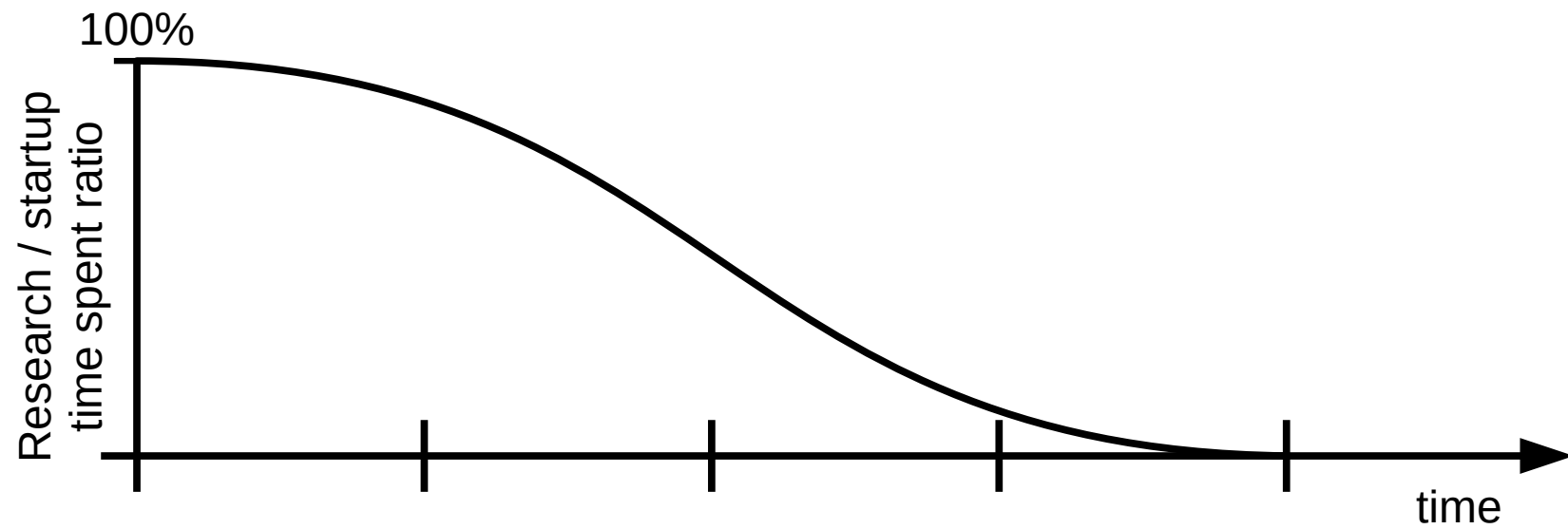
[1] Blank, S. (2005). Four steps to the epiphany.

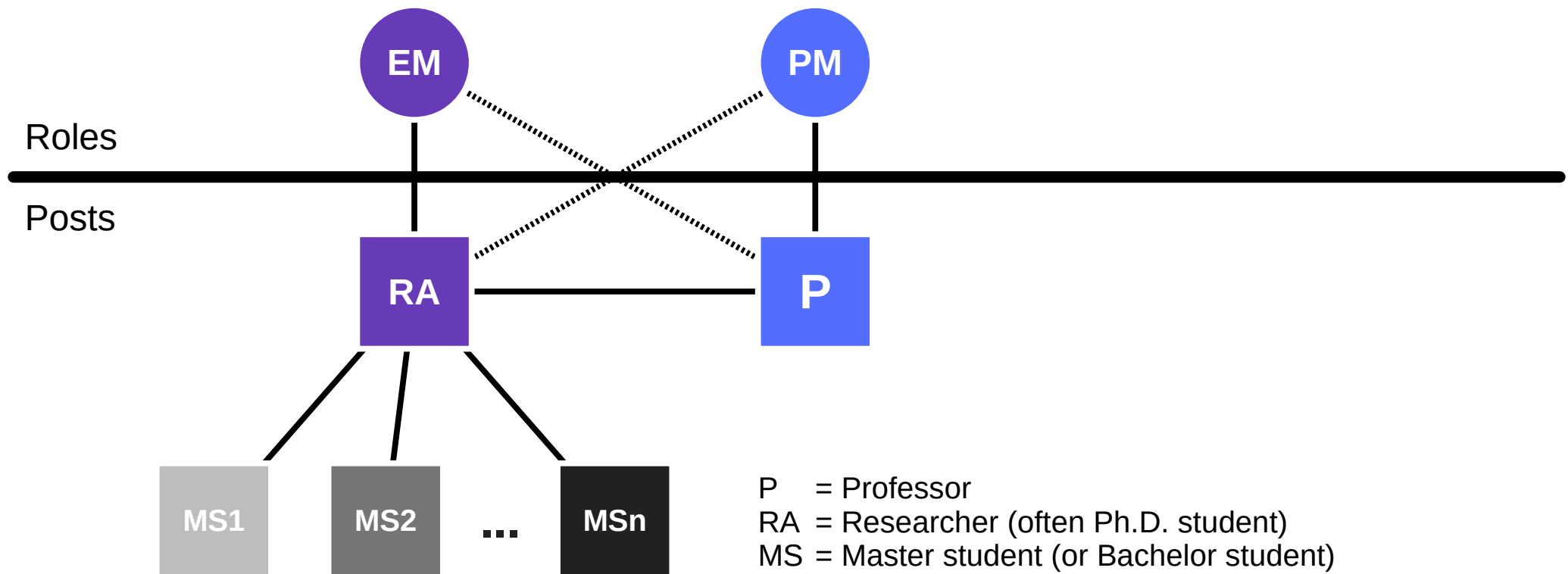
[2] Ries, E. (2011). The lean startup.

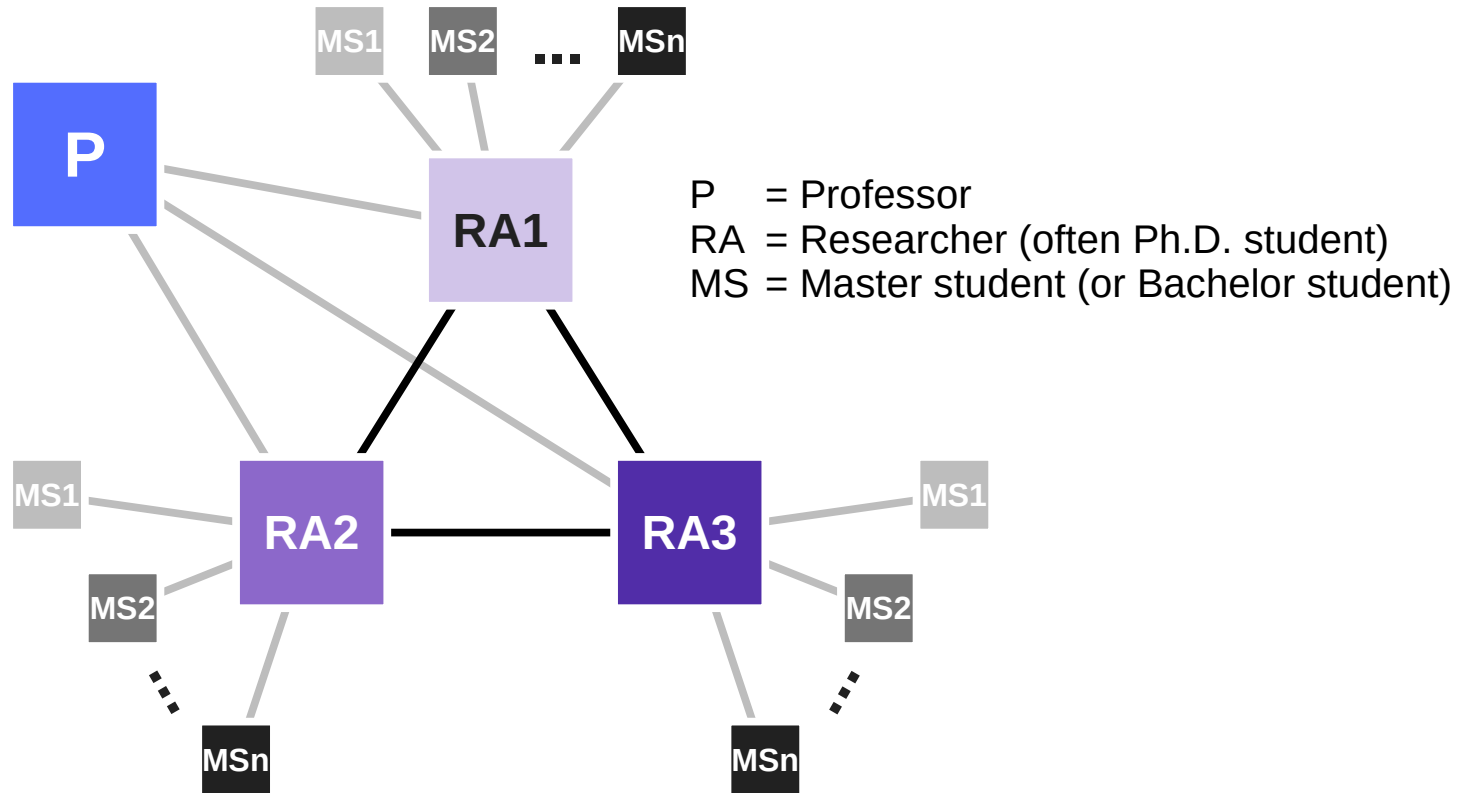
[3] Moore, G. A., & McKenna, R. (1999). Crossing the chasm.

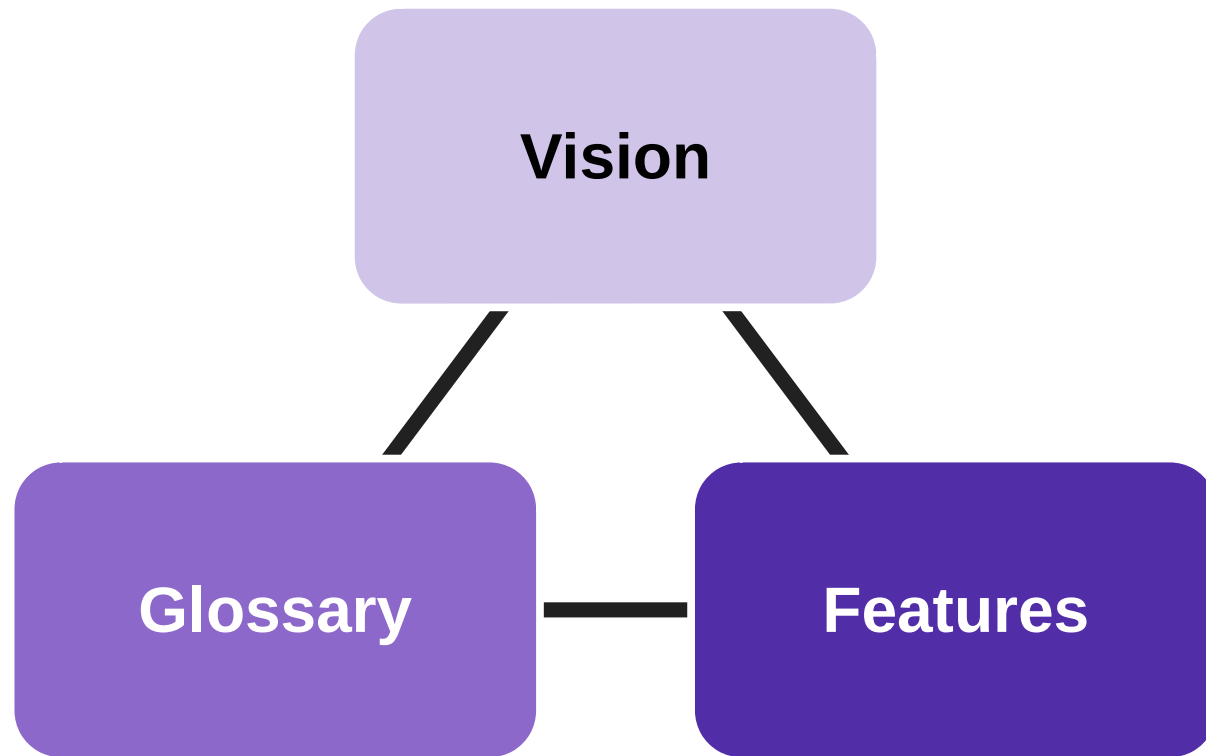
**D02**

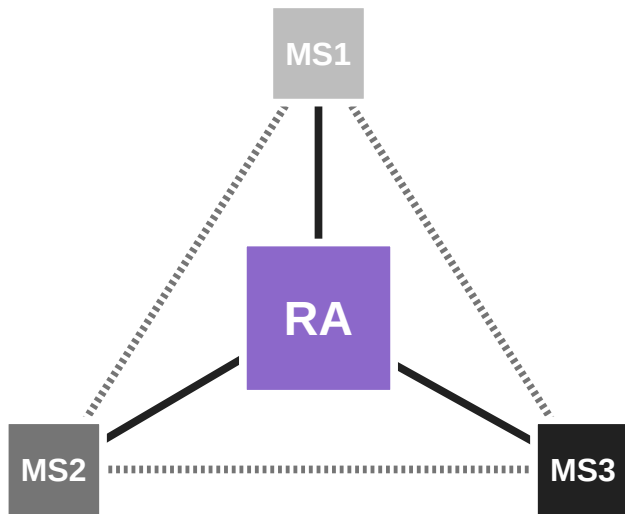
**Research vs. Startup**

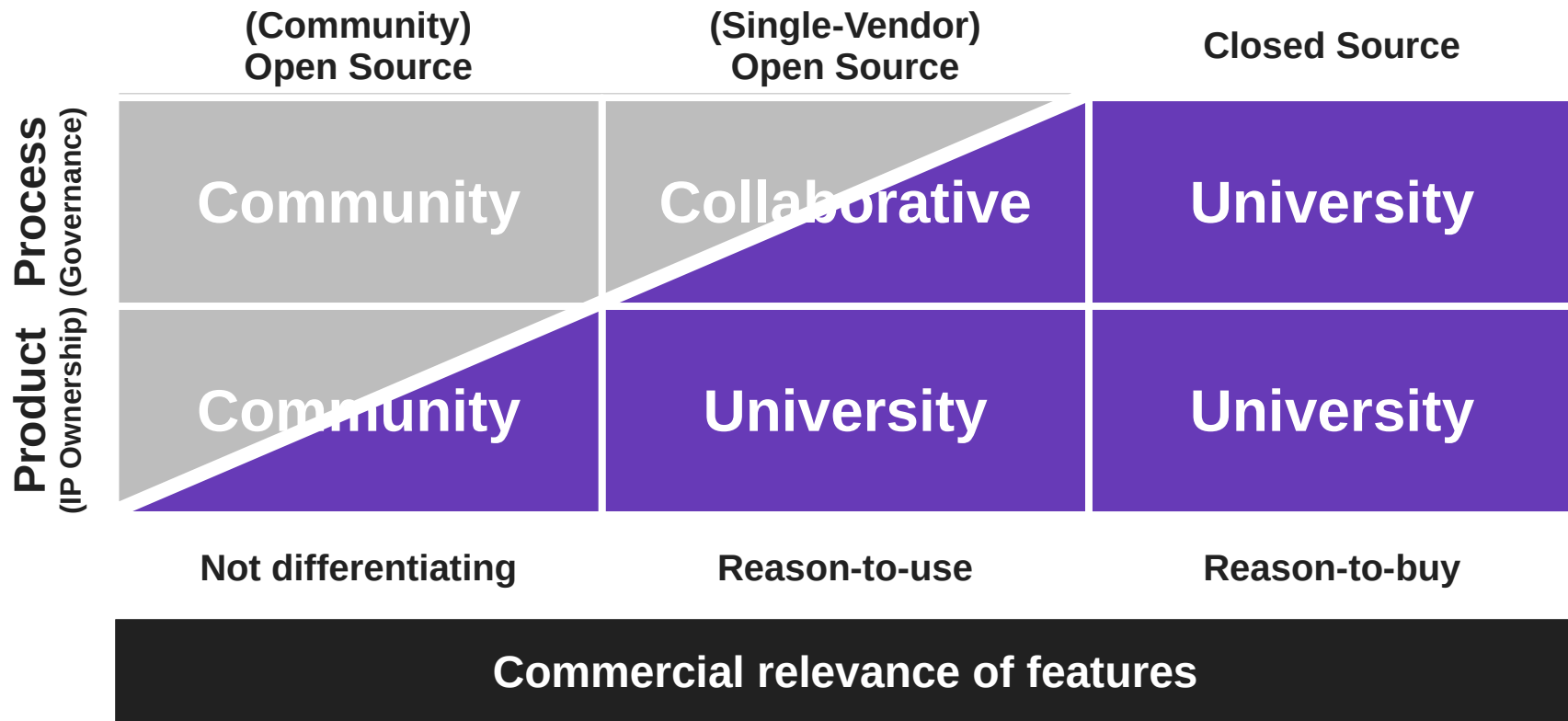




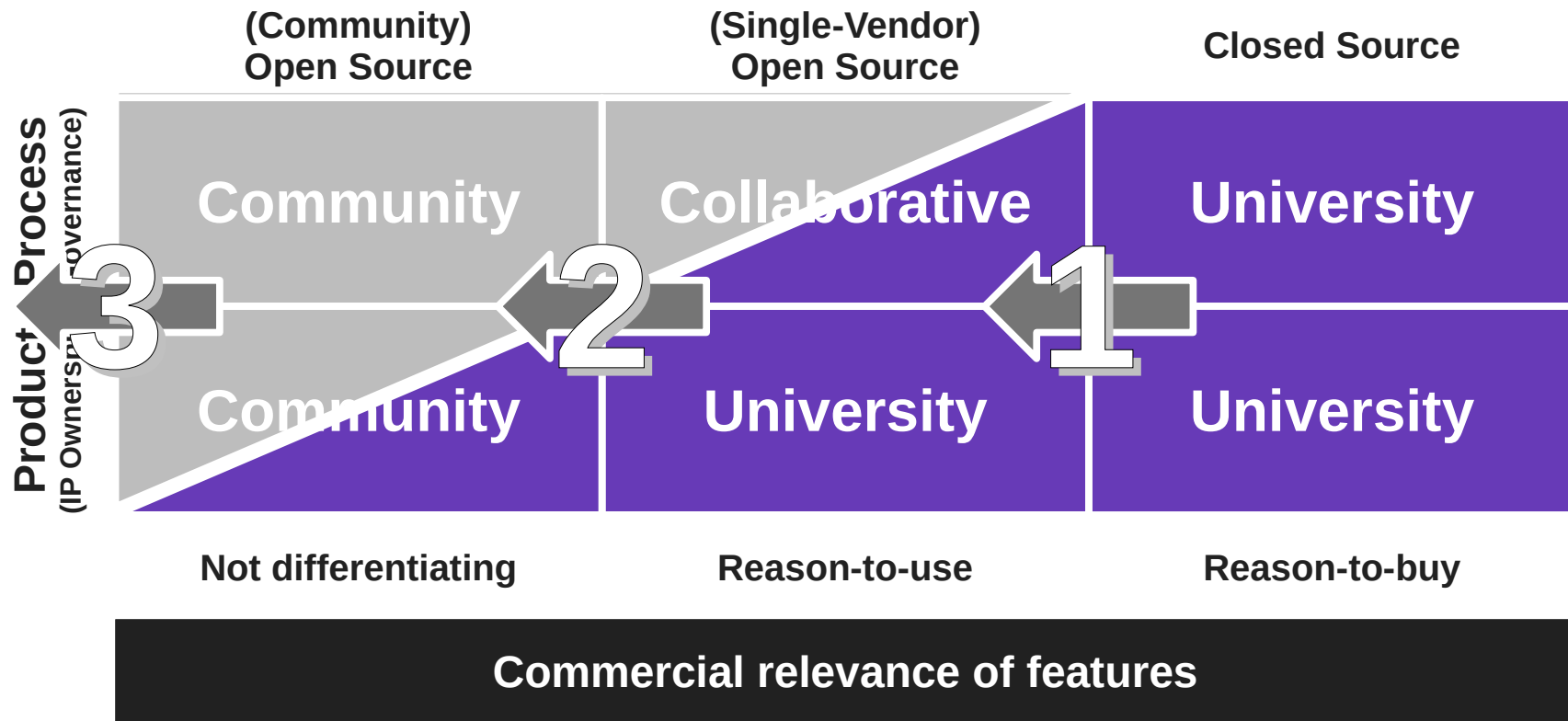


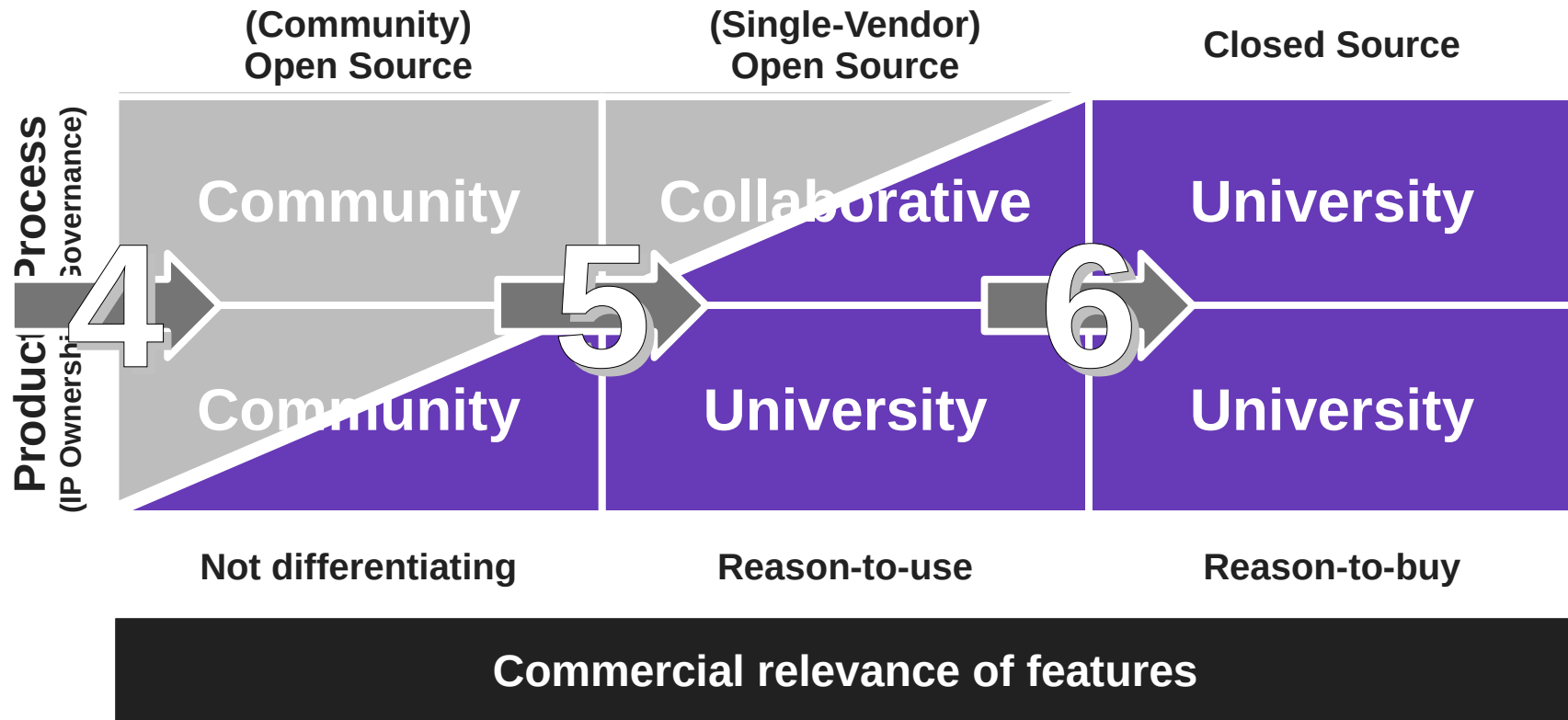






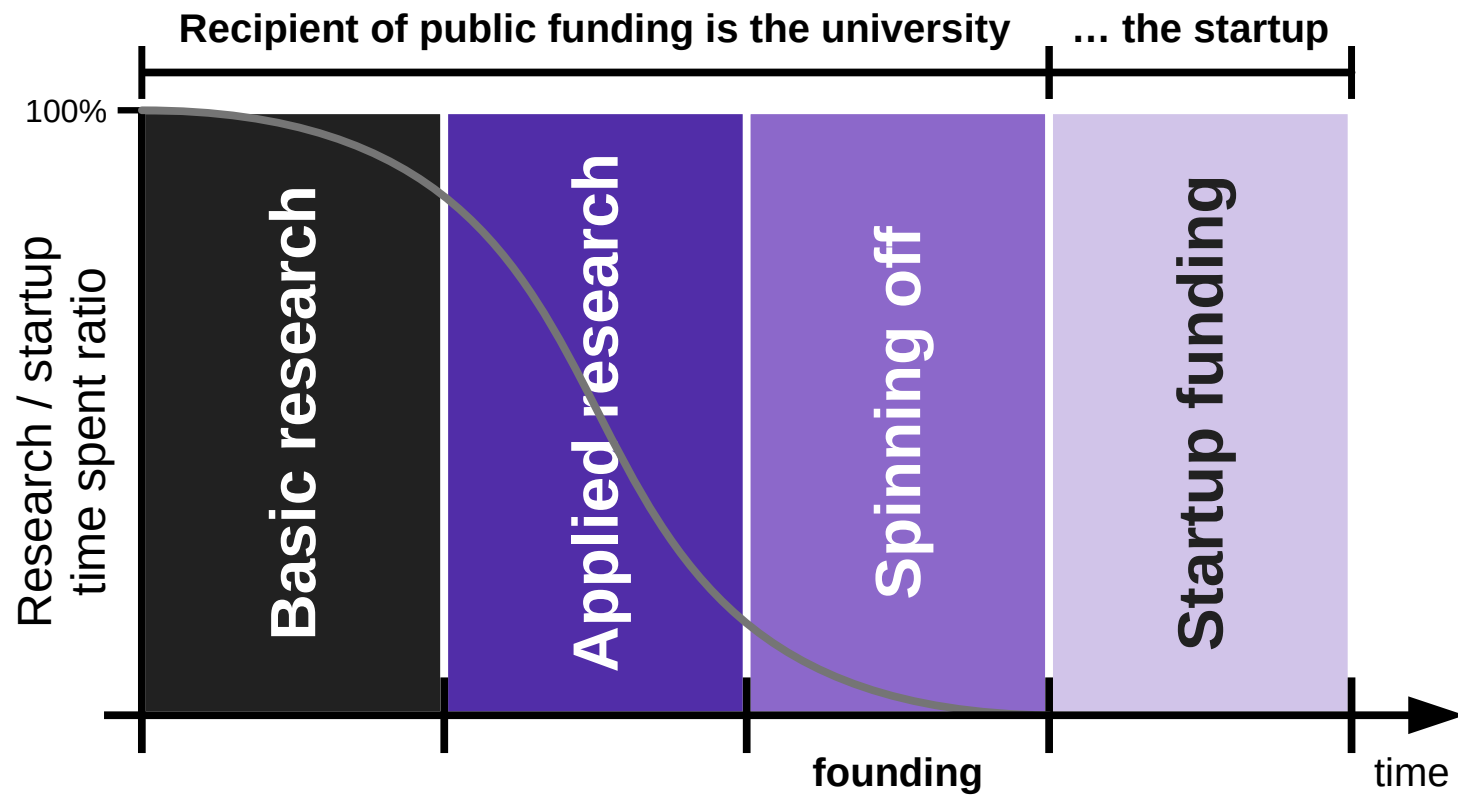


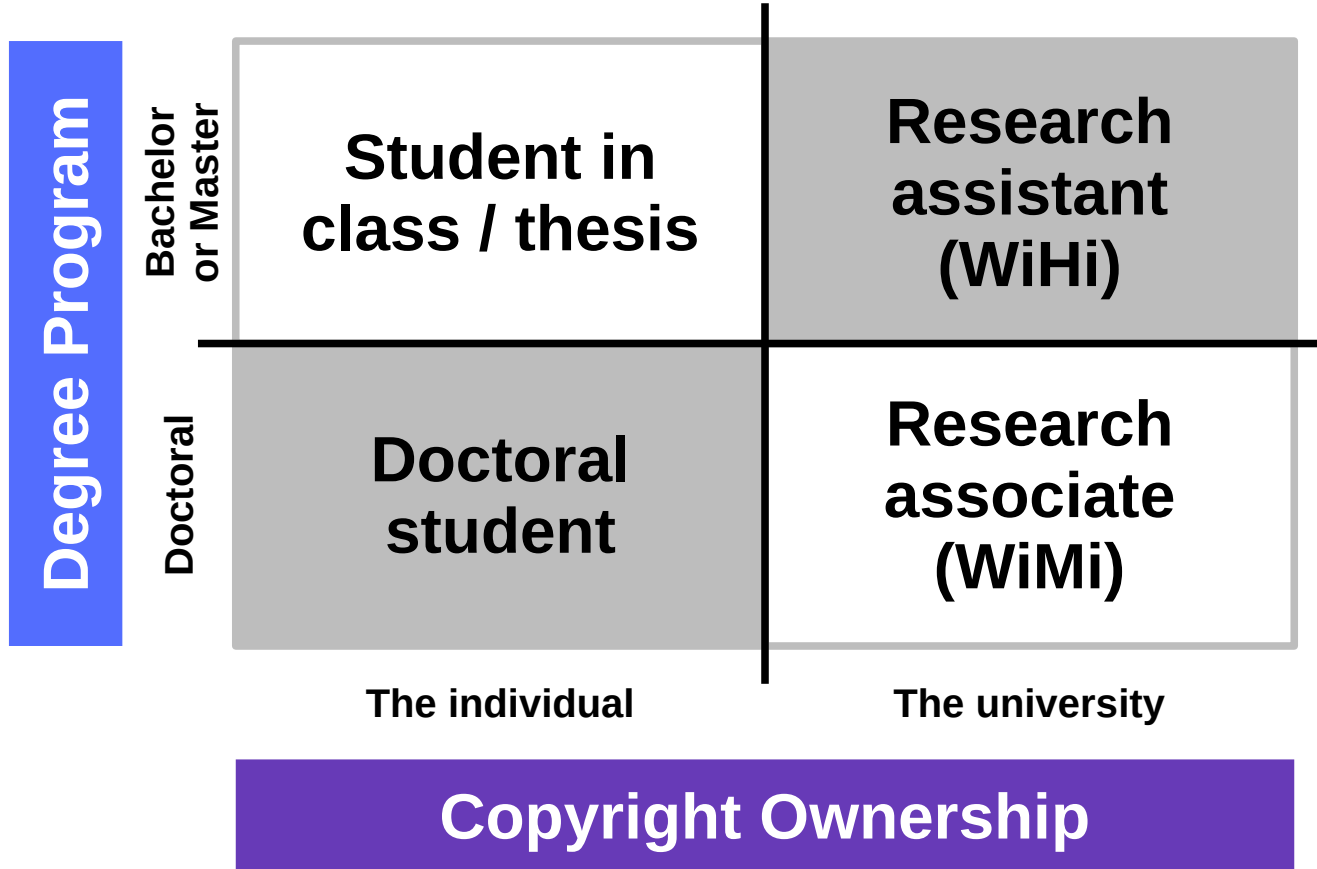




**D03**

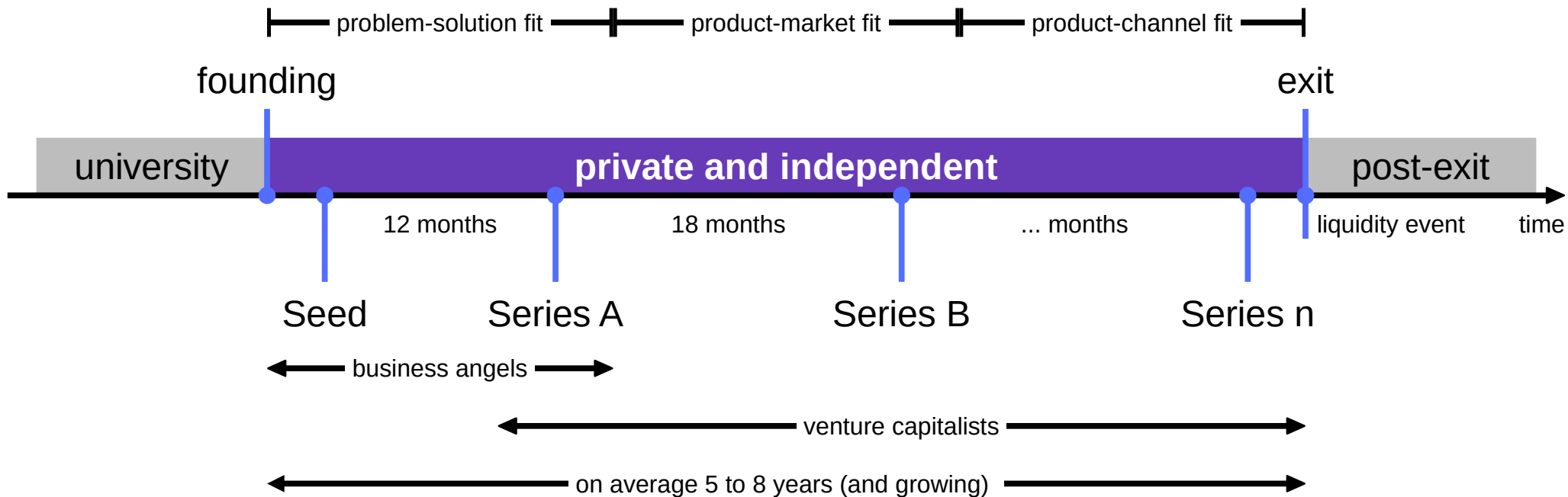
**University Spin-offs**

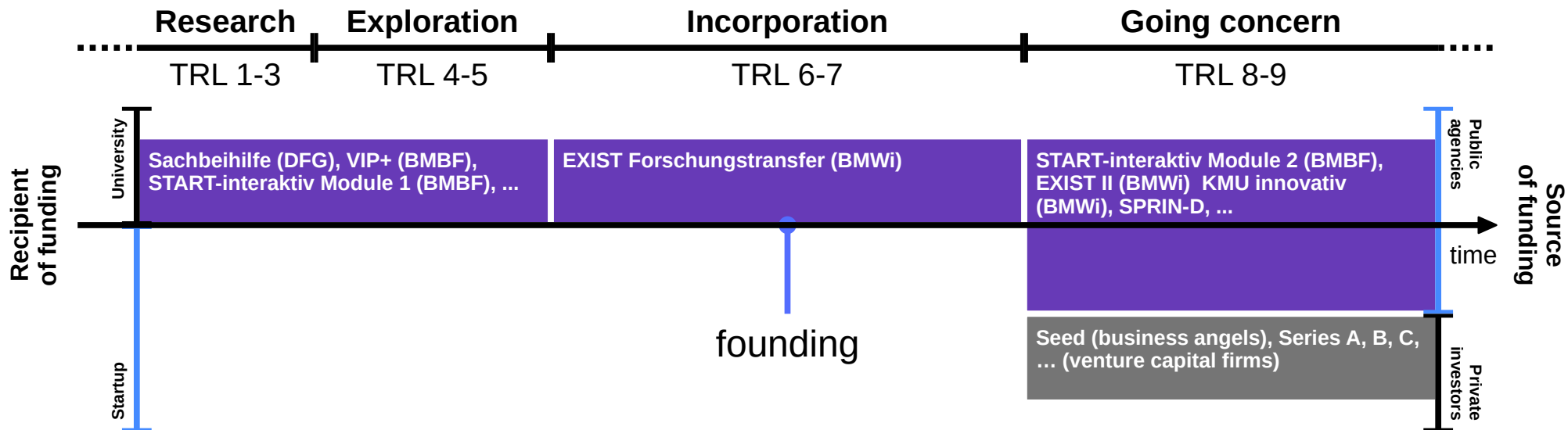




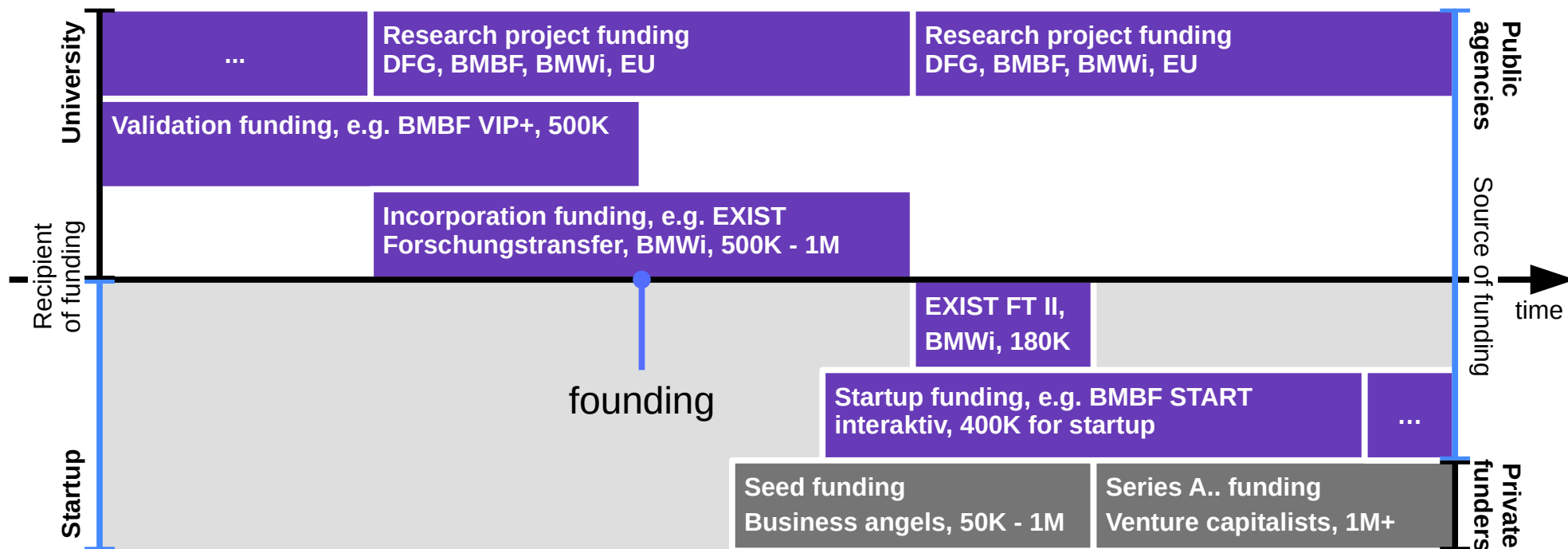
**D04**

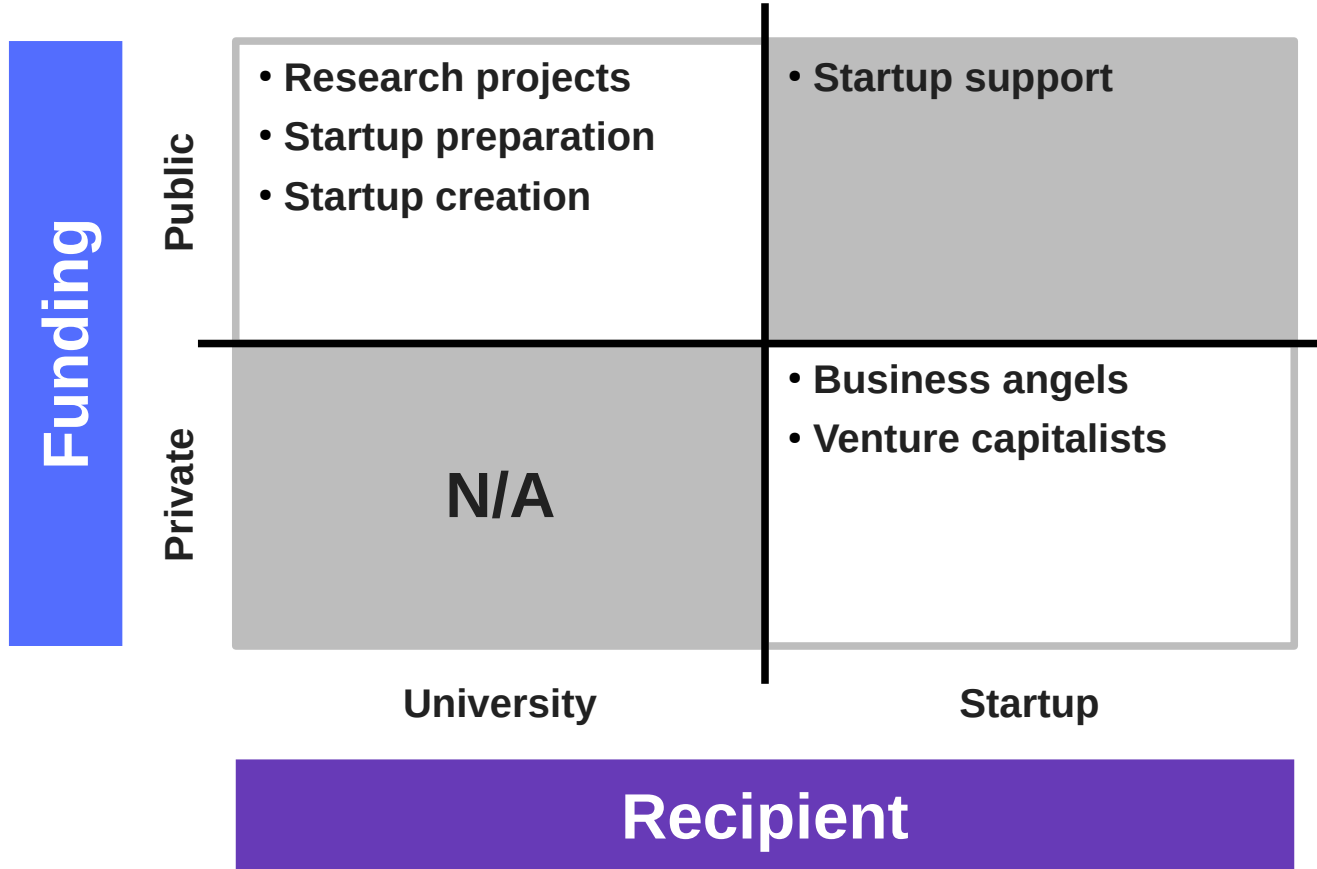
**Fundraising**











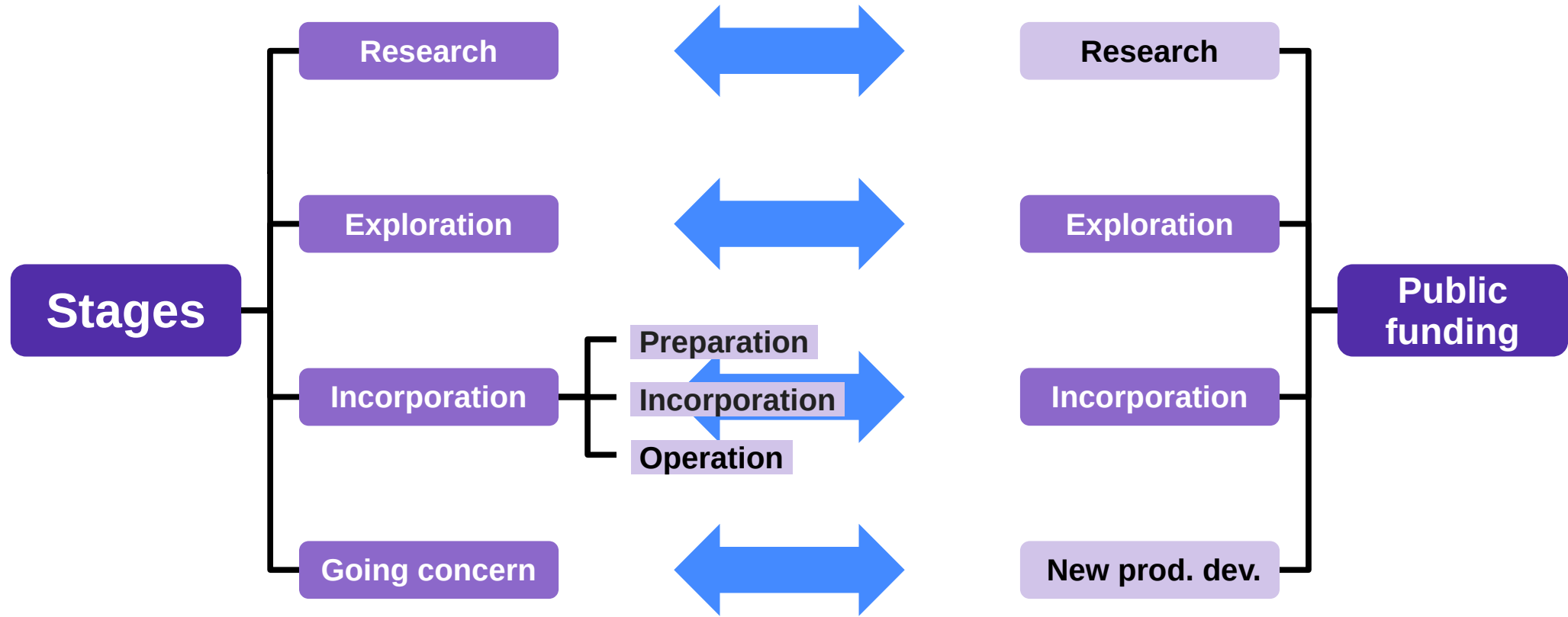
**Funder**

**Program**

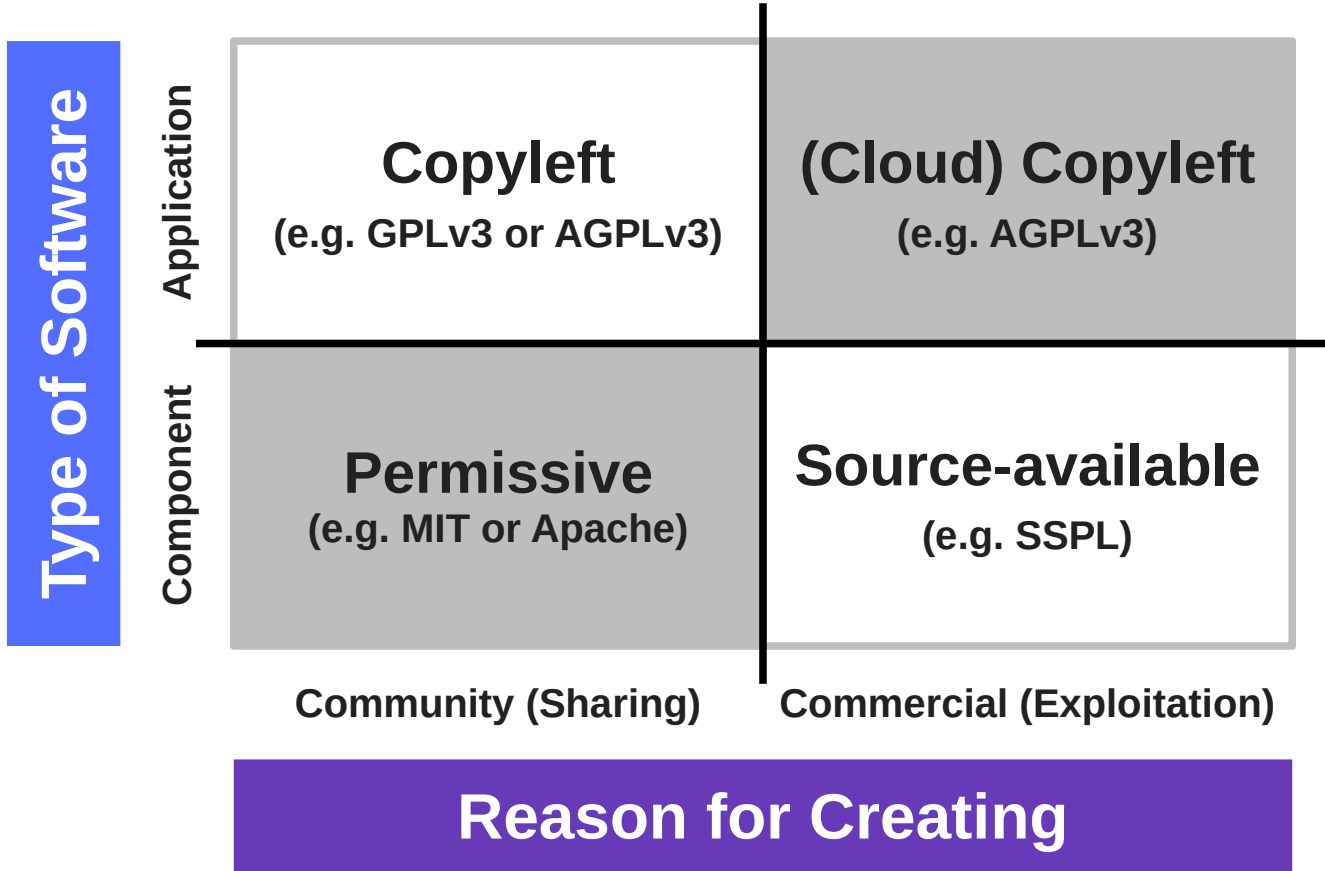
**Program  
manager**

**Grant  
proposal**

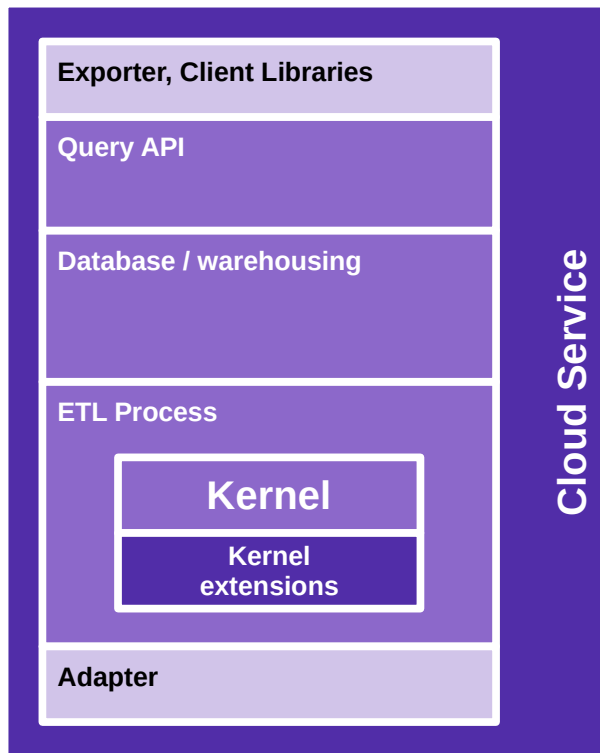
**Proposer**



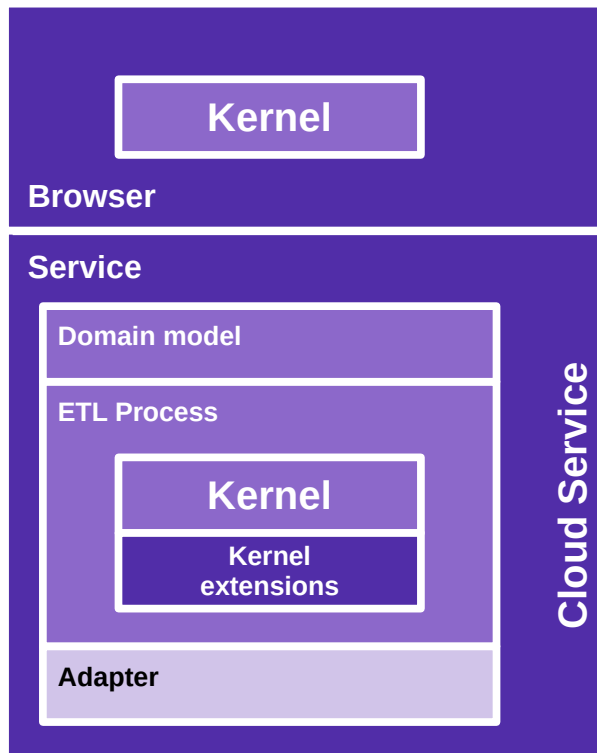
**Unused**



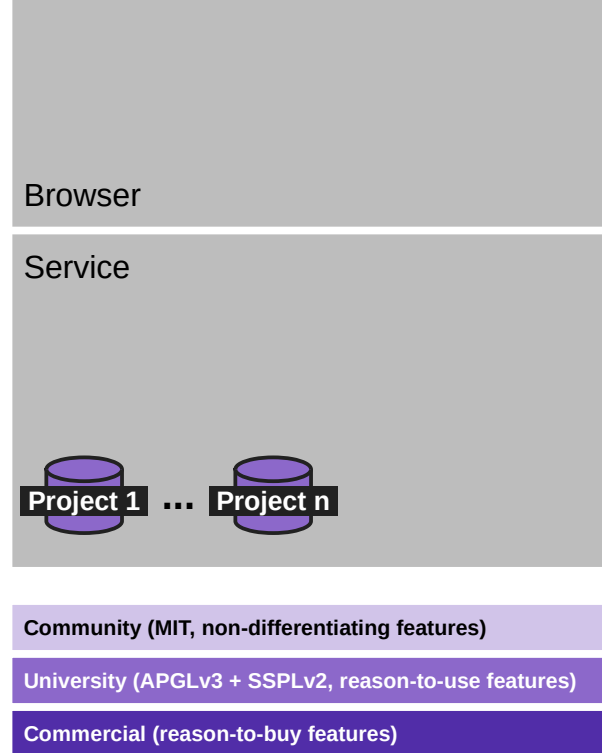
## Open Data Service (runtime)

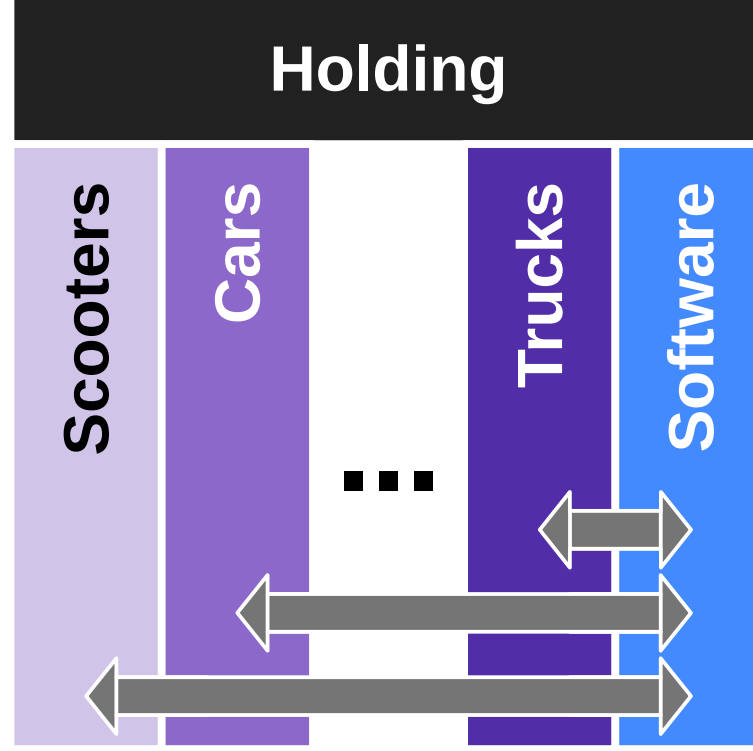
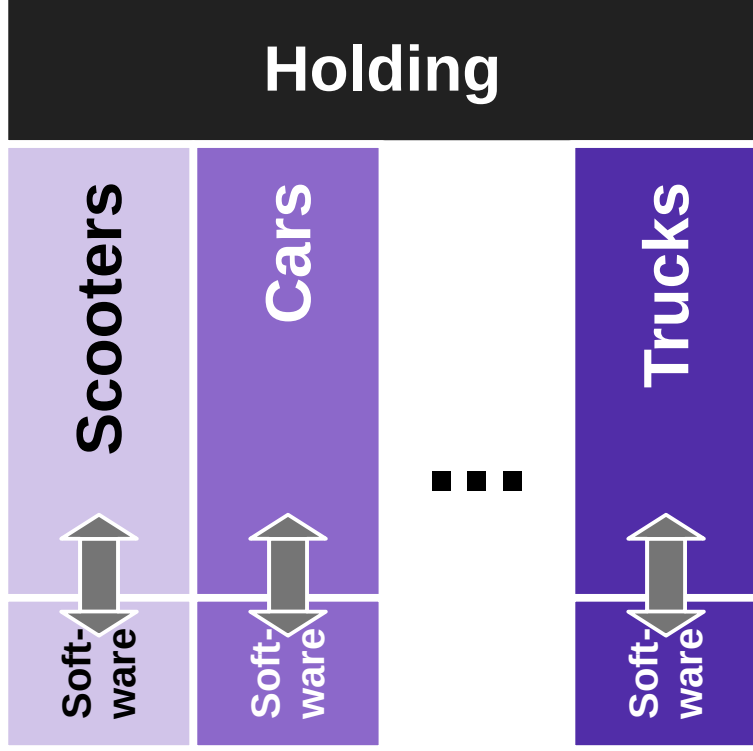


## Data Engineering Workbench (modeling)

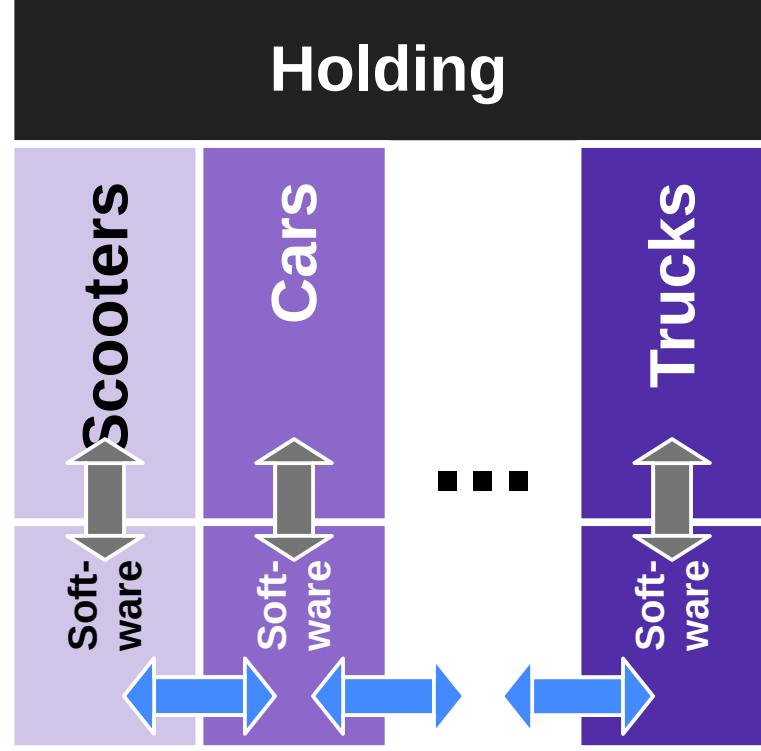
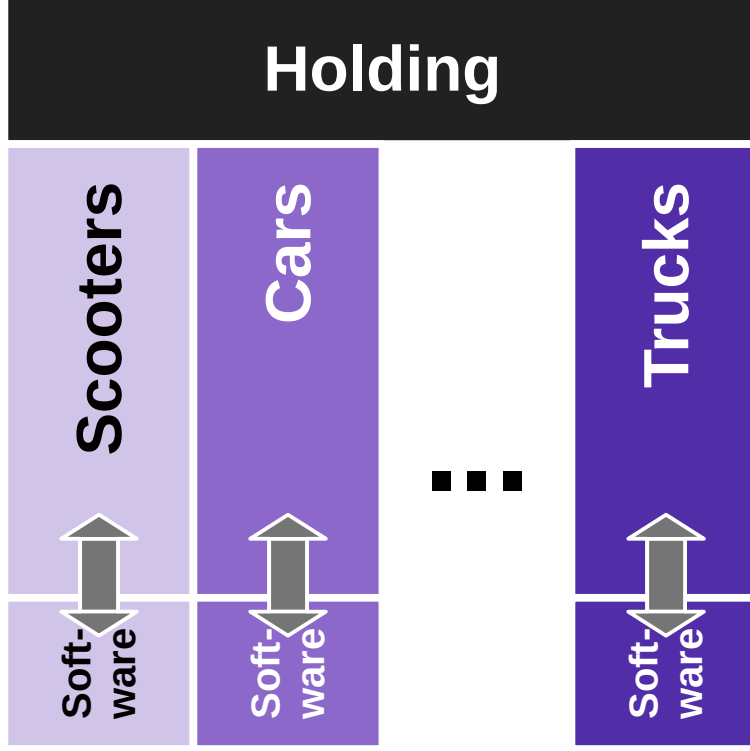


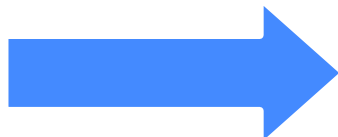
## Project Hub (libraries)



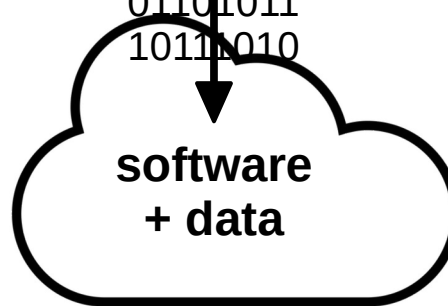








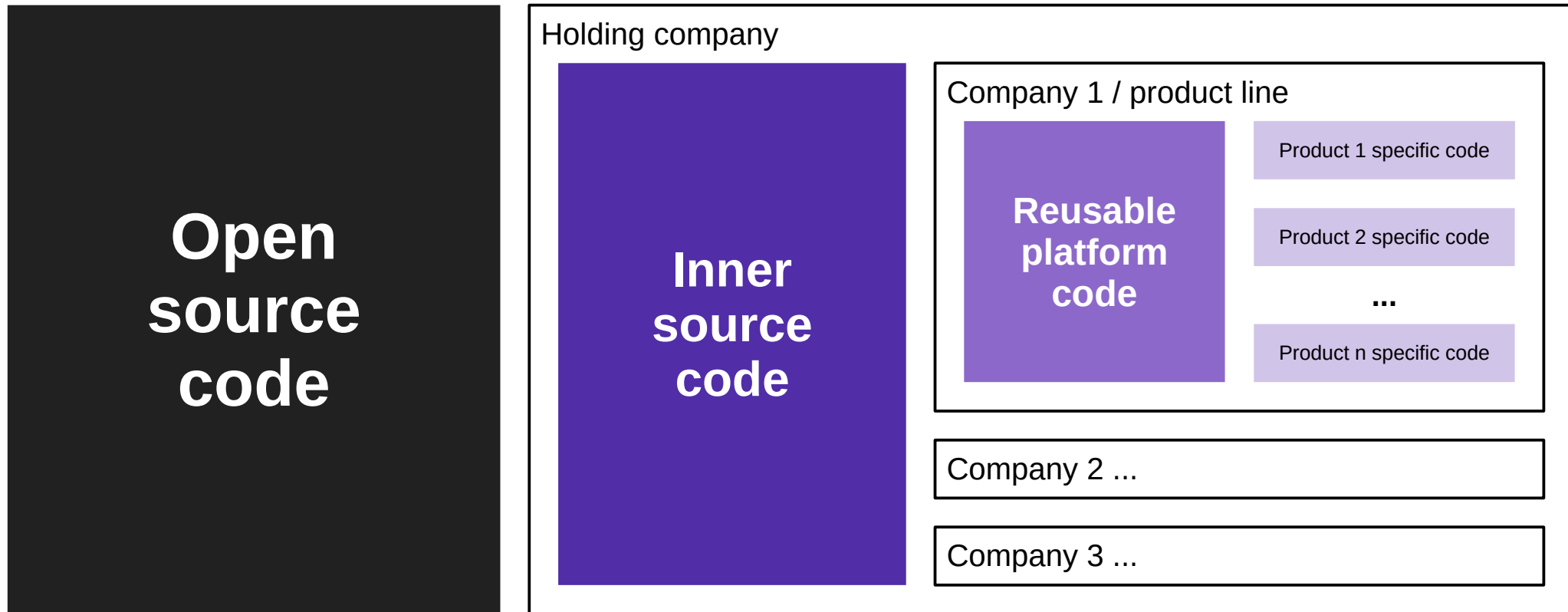
10010101  
11010010  
01101011  
10111010



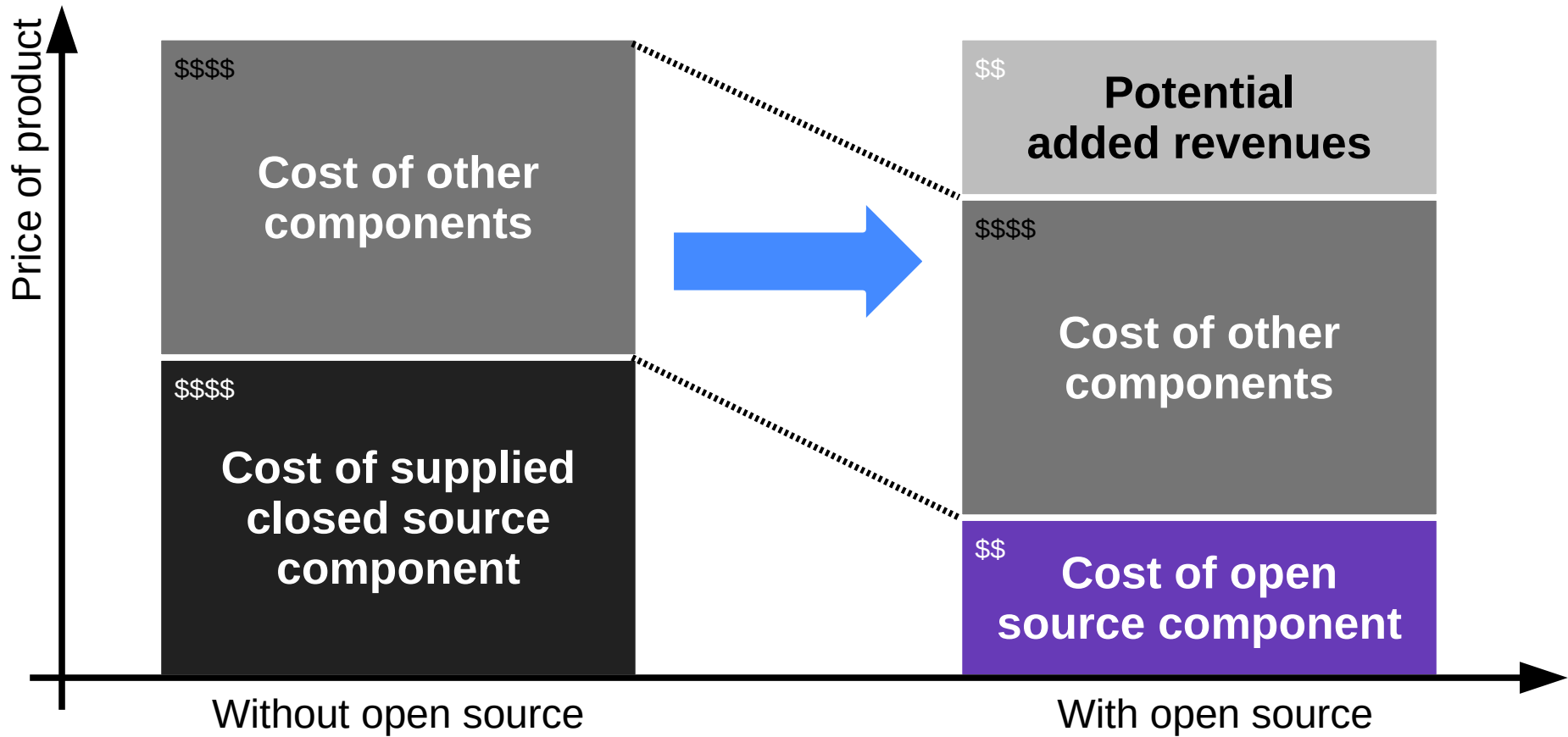
Every  
year

Every  
minute

← Openness / reusability →

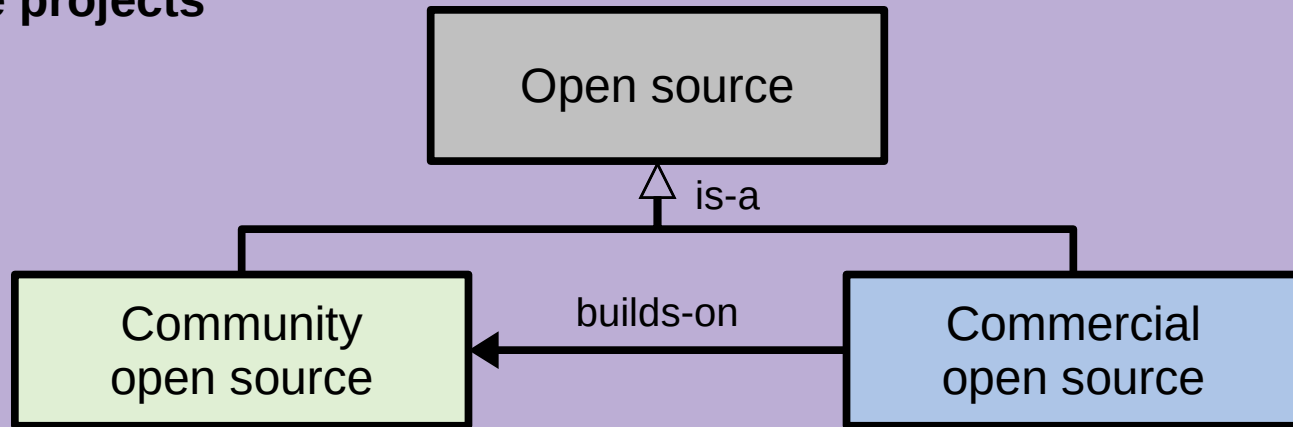


Not differentiating Competitively differentiating →

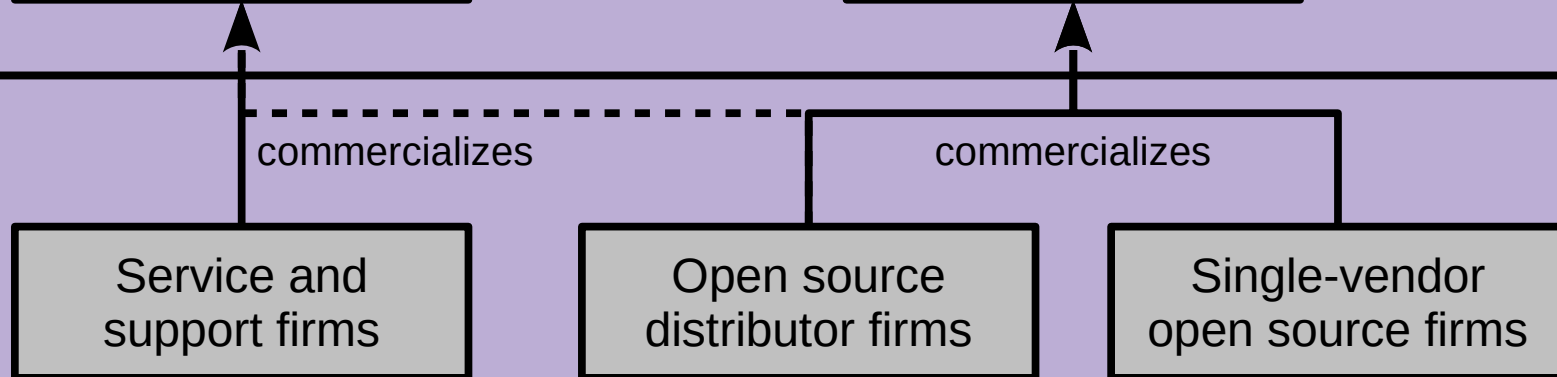


	Hardware	Software	(Human labor) Services
Business functions	e.g. TPUs	closed source features	e.g. hotline support
Quality of service	e.g. load balancers	cloud control plane + ops	e.g. pen testing

## Open source projects



## Companies



**Early**

**Growth**

**Mature**

Start

Complex product (that is not a commercial distribution)

Commercial distribution

Non-commercial distribution

