Software Center

Ecosystem-Driven R&D: Strategies for Value Co-Creation And Innovation

Helena H. Olsson, Malmö University & Software Center

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MALMÖ UNIVERSITY

“There is an Uber out there just waiting to *eat* you…”

The Digital Disruption Has Already Happened

- World's largest taxi company owns ***no*** taxis (Uber).
- Largest accomodation provider owns no real estate (Airbnb).
- Largets phone companies own ***no*** telecommuncation infrastructure (Skype, WeChat).
- World's most popular media owner creates ***no*** content (Facebook).
- Fastest growing bank has ***no*** actual money (SocietyOne).
- World's largest movie house owns ***no*** cinemas (Netflix).
- Largest SW vendors ***don't*** write the apps (Apple, Google).


Google

Helena Holmström Olsson

About me:

- Biträdande professor, Malmö University.
- Senior researcher in Software Center.
- PhD in Informatics from University of Gothenburg, 2004.

Research:

- Data-driven development
- Business ecosystems
- Autonomous systems & IoT

Projects:

- Fast Customer Feedback In Large-Scale SE
- Ecosystem Driven R&D Management
- Software Engineering For Smart Systems (WASP)

Success criteria:

- Academic excellence AND industrial impact

Software Center

Mission: Improve the software engineering capability of the Nordic Software-Intensive industry with an order of magnitude

Theme: Fast, continuous deployment of customer value

Success: Academic excellence

Success: Industrial impact

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Three Key Take-Aways

- Companies are increasingly shifting perspective from internal efficiency to **ecosystem alignment.**
- **Intentionally managing** your ecosystems is superior to taking ad-hoc decisions.
- **Strategic use of the ecosystems** around your systems and services is critical as it allows for agility, risk sharing and allows the company to focus on the key differentiators.

How Do Companies Compete?

- ***Efficiency (late 19th century):*** To facilitate the production of products and services with the least amount of wasted time, materials, and labor.
- ***Scale (1970's):*** Exploit economies of scale that yield lower unit costs and enable sharper pricing of their goods and services.
- ***Quality (1980's):*** Quality movement with processes like Six Sigma quality control becoming hugely popular.
- ***Network (1990's):*** Companies begin to compete based on how many people (or businesses) use them, e.g. Microsoft, Google, Facebook etc.
- ***Ecosystem (today):*** Co-opting third parties to build on and leverage your products and services such that they have more total utility to your customers.

Ecosystem-driven competition

Business ecosystem

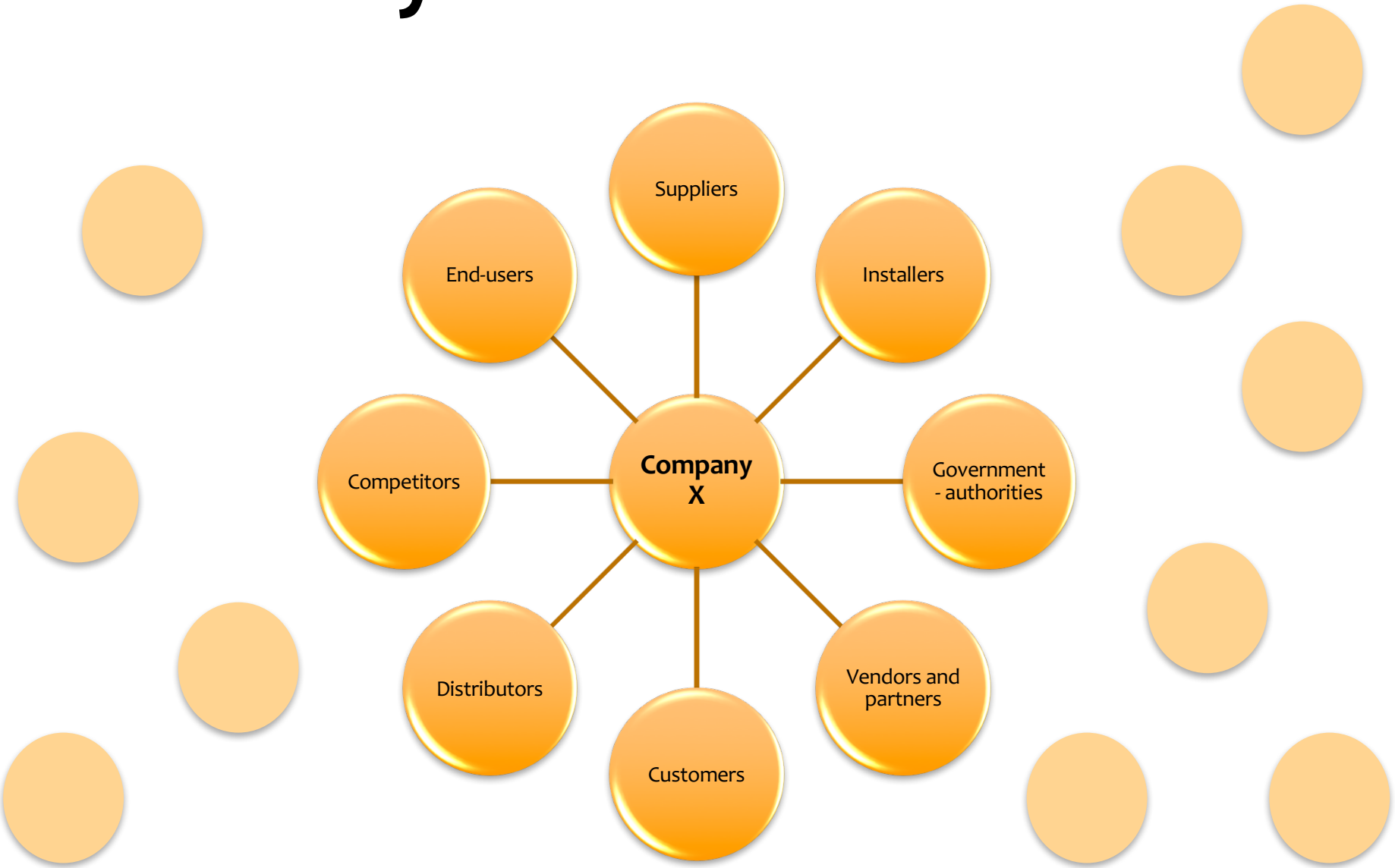
Economic community supported by a foundation of interacting organizations and individuals, which can also be perceived as organisms of the business world (Moore, 1993).

1. ***Symbiotic relationship:*** Close and often long-term interactions between two or more objects.
2. ***Co-evolution:*** The change of an object is triggered by the change of a related object.
3. ***Co-creation:*** Joint production of a mutually valued outcome.
4. ***Platform:*** Tools, services and technology used in ecosystem to enhance performance

Roles in ecosystems

- ***Keystone:*** Central firm
- ***Complementor:*** Provides a product/service that complement the ecosystem product/platform and enhances value (e.g., suppliers, developers etc.)
- ***Integrator:*** Brings together parts provided by different ecosystem players into an integrated solution for the end-user.
- ***Customer*** or end-user.

Ecosystem stakeholders



Why business ecosystems?

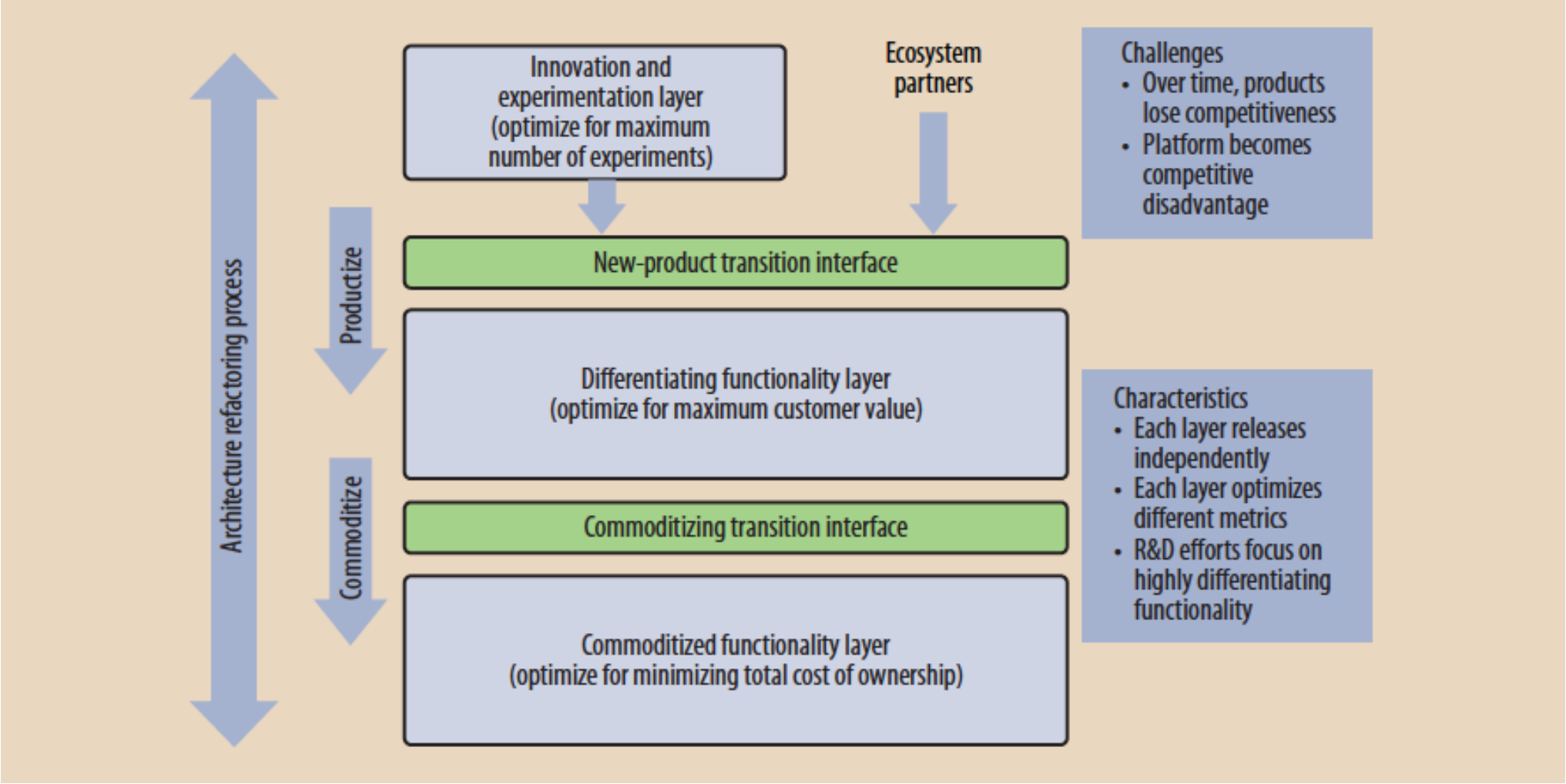
- Increase ***value*** of the core offering to existing users.
- Increase ***attractiveness*** for new users.
- Accelerate ***innovation*** through open innovation.
- Collaborate with partners to ***share cost and risk*** of innovation.
- Collaborate with partners to ***reduce development and maintenance*** costs.
- "Platformize" functionality developed by partners in the ecosystem (once success has been proven), to ***grow*** your core offering.

Ecosystem strategies

Two fundamental strategies:

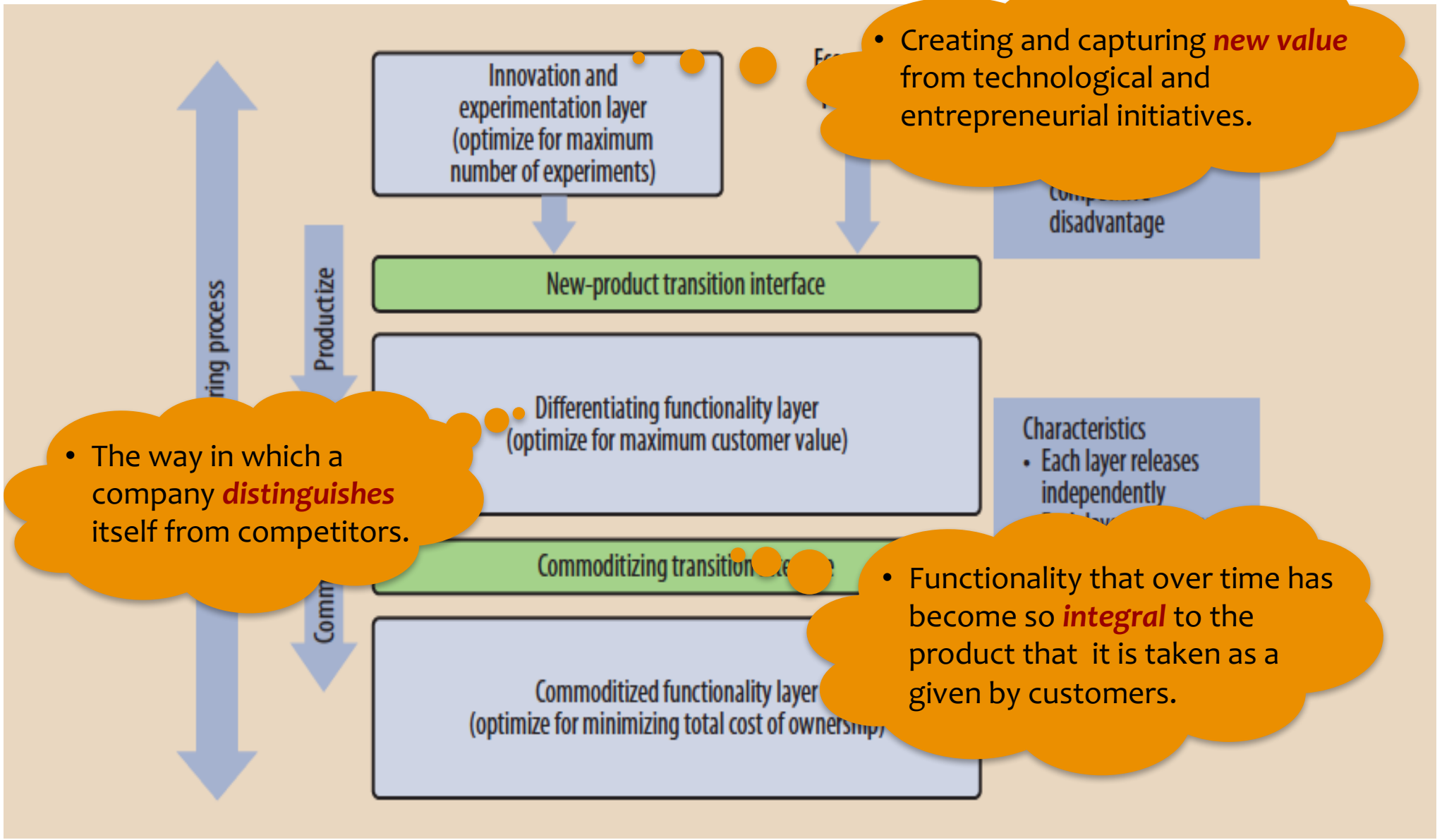
- **Collaborative** – cooperation in communities e.g., Android platform (Google), Wikipedia
- **Competitive** – market driven e.g., Apple app-store, Gore-Tex
  - Gore provides the core "technology", i.e. the fabric (and rules for its use), and the licensees innovate on that "platform" and sell their applications/products to customers.

3LPM: Three Layer Product Model

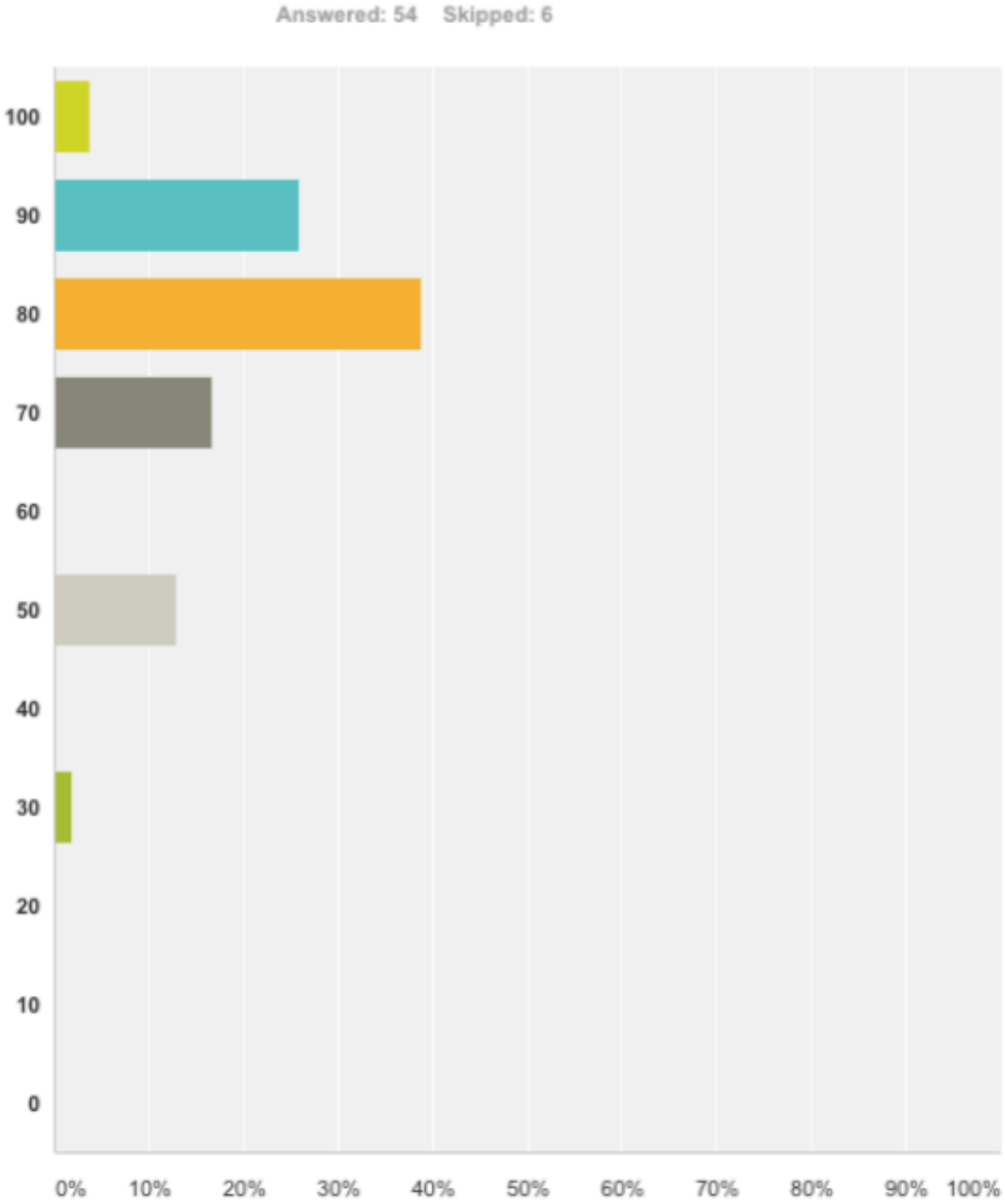


Bosch, J. (2013). Achieving Simplicity with the Three-Layer Product Model, *IEEE Computer*, Vol. 46 (11), pp. 34-39.

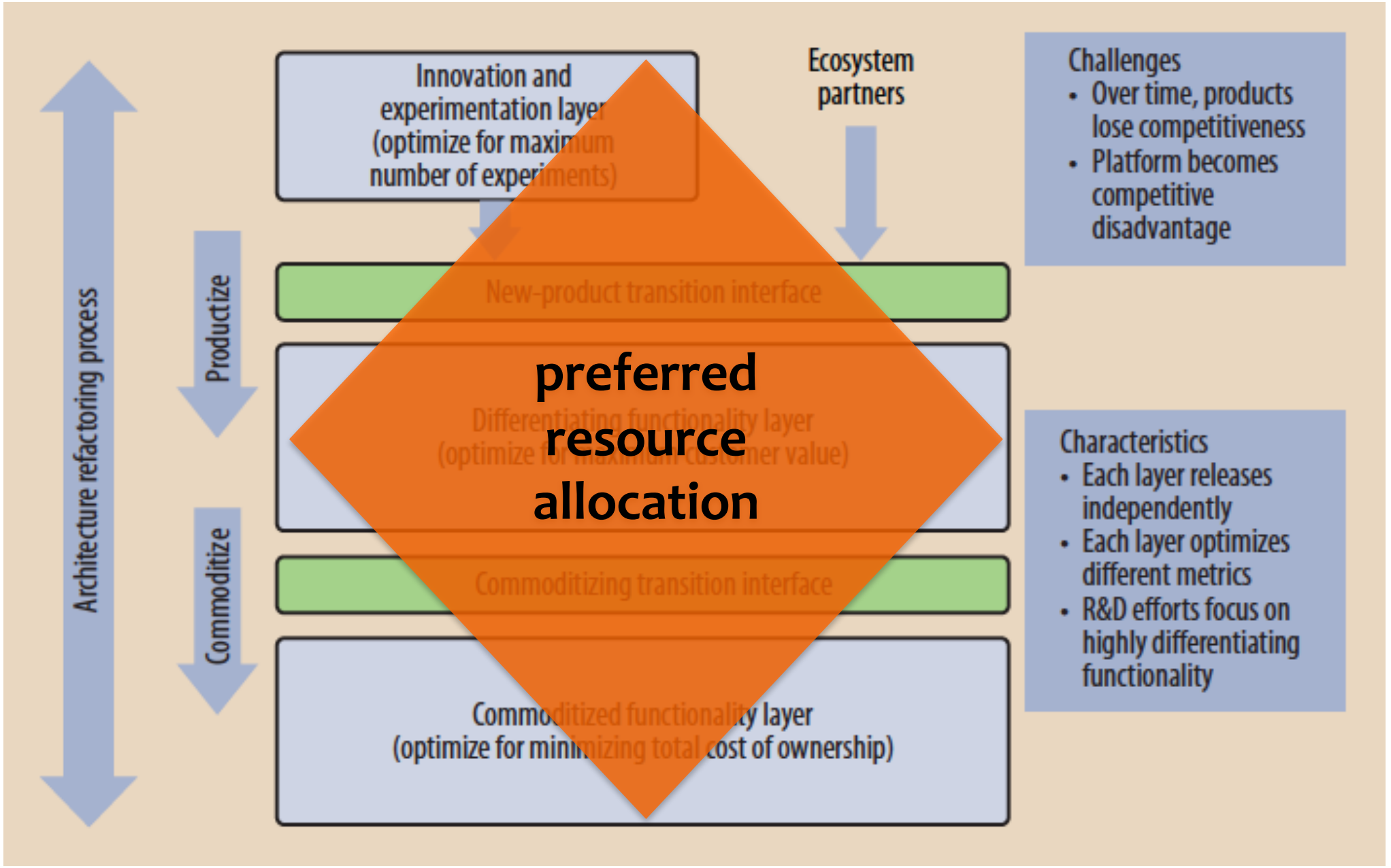
3LPM To Three Layer Ecosystem Model



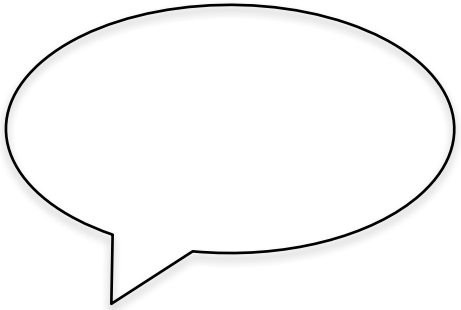
What % of R&D for Commodity



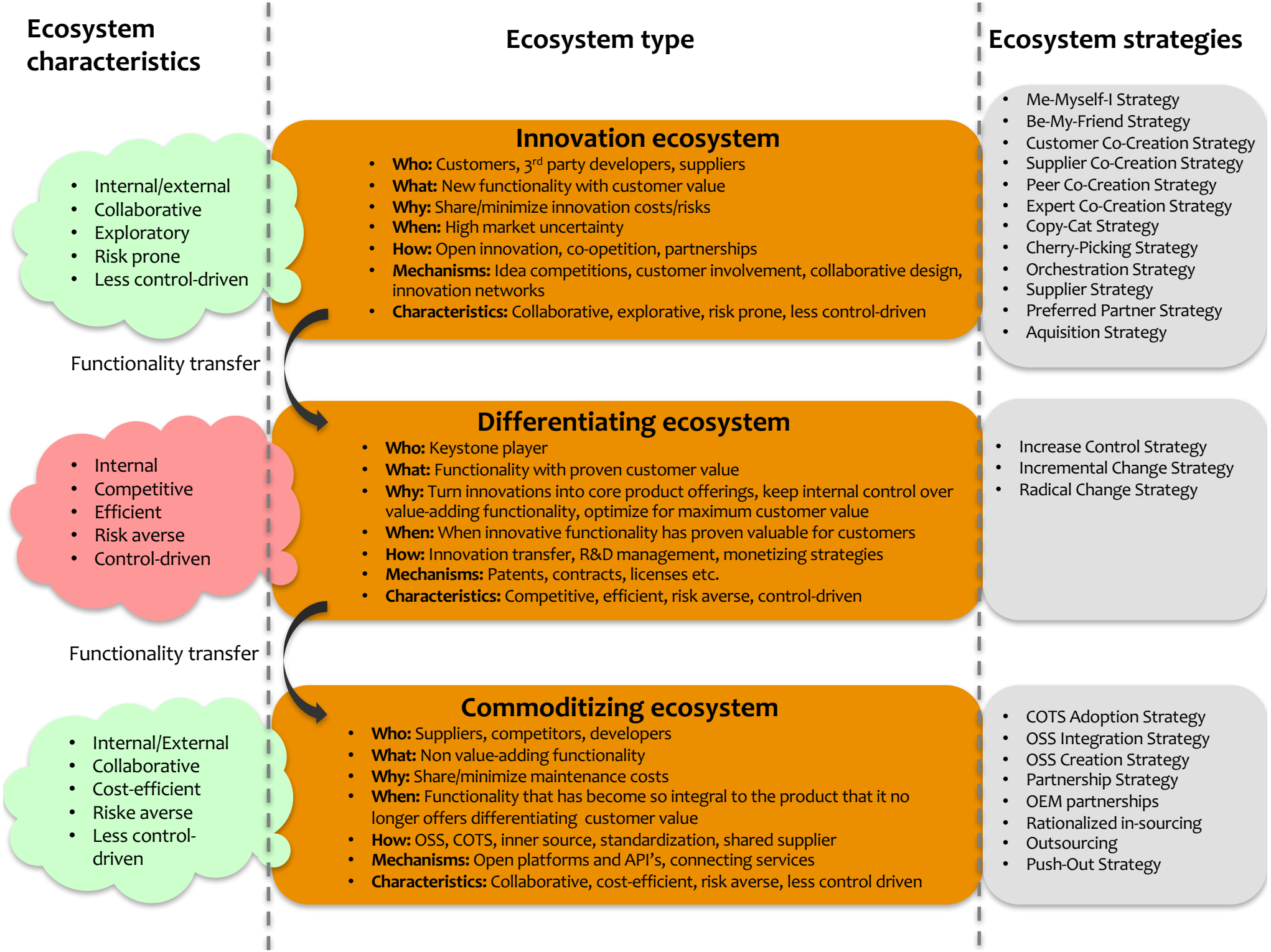
3LPM: Three Layer Product Model



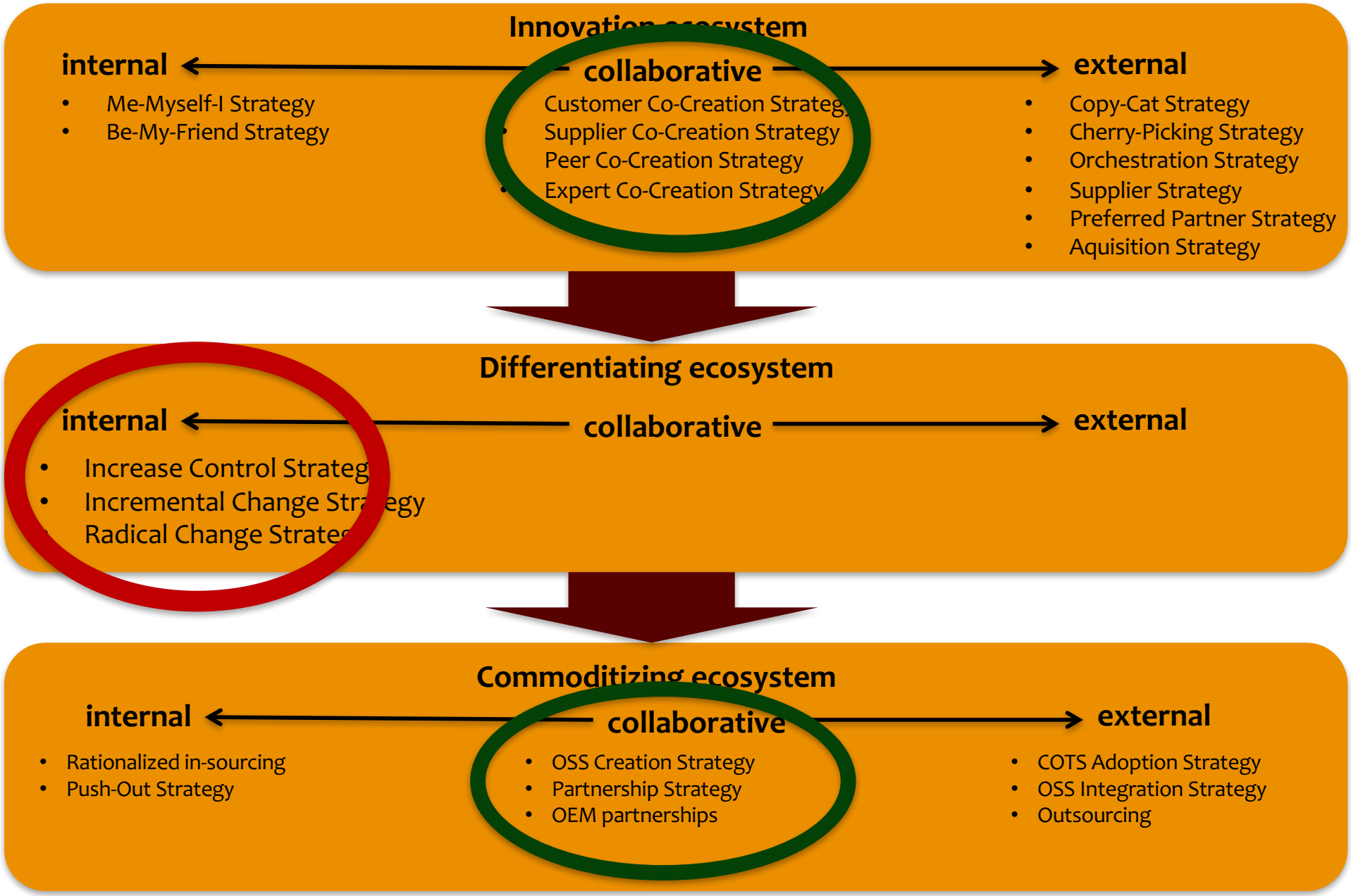
Quotes



- ”We try to innovate commodity – that’s why we’re ***so slow***”.
- ”We do incremental innovation, while the ones we look at – the Googles – do disruptive innovation. We have ***big difficulties*** to handle disruptive innovation and new business models”.
- ”When having new service innovations you run into interesting issues of ***responsibility***… who is to blame when Spotify doesn’t work in my car…?”.
- ”Like with ’Apple CarPlay’ we ”give away” product differentiation. We risk a lower quality of the user experience but we gain other things. So the question becomes *when* should we have our own applications and when should we ***trust someone else*** to develop them for us…?”.
- ”Our challenge is to understand the concept of open source… that you actually build and ***give away***...!!!”.


Ecosystem characteristics
Ecosystem type
Ecosystem strategies
Internal/external
Collaborative
Exploratory
Risk prone
Less control-driven
Innovation ecosystem
Who: Customers, 3rd party developers, suppliers
What: New functionality with customer value
Why: Share/minimize innovation costs/risks
When: High market uncertainty
How: Open innovation, co-opetition, partnerships
Mechanisms: Idea competitions, customer involvement, collaborative design, innovation networks
Characteristics: Collaborative, explorative, risk prone, less control-driven
Me-Myself-I Strategy
Be-My-Friend Strategy
Customer Co-Creation Strategy
Supplier Co-Creation Strategy
Peer Co-Creation Strategy
Expert Co-Creation Strategy
Copy-Cat Strategy
Cherry-Picking Strategy
Orchestration Strategy
Supplier Strategy
Preferred Partner Strategy
Aquisition Strategy
Functionality transfer
Internal
Competitive
Efficient
Risk averse
Control-driven
Differentiating ecosystem
Who: Keystone player
What: Functionality with proven customer value
Why: Turn innovations into core product offerings, keep internal control over value-adding functionality, optimize for maximum customer value
When: When innovative functionality has proven valuable for customers
How: Innovation transfer, R&D management, monetizing strategies
Mechanisms: Patents, contracts, licenses etc.
Characteristics: Competitive, efficient, risk averse, control-driven
Increase Control Strategy
Incremental Change Strategy
Radical Change Strategy
Functionality transfer
Internal/External
Collaborative
Cost-efficient
Riske averse
Less control-driven
Commoditizing ecosystem
Who: Suppliers, competitors, developers
What: Non value-adding functionality
Why: Share/minimize maintenance costs
When: Functionality that has become so integral to the product that it no longer offers differentiating customer value
How: OSS, COTS, inner source, standardization, shared supplier
Mechanisms: Open platforms and API's, connecting services
Characteristics: Collaborative, cost-efficient, risk averse, less control driven
COTS Adoption Strategy
OSS Integration Strategy
OSS Creation Strategy
Partnership Strategy
OEM partnerships
Rationalized in-sourcing
Outsourcing
Push-Out Strategy

TeLESM: Three Layer Ecosystem Strategy Model



Conclusions

- Companies engage in ***different types of ecosystems*** in relation to development of innovative functionality, differentiating functionality and commodity functionality.
- To ***distinguish*** between the different ecosystems is critical as these require fundamentally different strategies.
- Companies that fail in distinguishing between the different ecosystems ***risk having resources tied up in commodity*** with the result that development of differentiating and innovative functionality suffers.
- Effective ecosystem management requires the use of both ***collaborative and competitive*** strategies.
- Ecosystems are ***dynamic*** in nature and change over time. This requires continuous and conscious transfer of functionality between ecosystems – and a constant assesment and evaluation of what strategies are used.

Three Key Take-Aways

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- **Strategic use of the ecosystems** around your systems and services is critical as it allows for agility, risk sharing and allows the company to focus on the key differentiators.

Thank you!

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