

# Ecosystem Dynamics

Business Models for the Digital Economy

Master in Informatics and Computing Engineering

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# Agenda

Digital ecosystems – interacting organizations that are digitally connected and enabled by modularity, and are not managed by hierarchical authority:

- Enablers
- Economic arrangement
- Managing and influencing complementors
- Strategic questions

# Enablers (1/2)

Enablers	Capabilities	Economic possibilities	Apple iOS & App Store
Digitization	<ul style="list-style-type: none"> <li>Connect a broad set of firms to deliver a customer solution</li> </ul>	<p>Variety attracts variety:</p> <ul style="list-style-type: none"> <li>Customers value variety and ability to choose</li> <li>Firms want to offer solutions for broad sets of needs (rather than focusing on one segment at a time)</li> <li>Focal firms need to find complementors to offer services where the focal firm is not active</li> </ul>	<ul style="list-style-type: none"> <li>Hardware and software where a set of apps can be downloaded, executed and interact</li> <li>Notes, organisers, planners, editors, publishers, workflow, teamwork... &lt;-&gt;- self-employed to corporate staff, students to faculty, junior to senior staff...</li> <li>Apple cannot do it all alone, e.g., communication with Skype and WhatsApp came early</li> <li>App developers can do the same, e.g., with complements to share, store, access and process different kinds of information goods</li> </ul>

# Enablers (2/2)

Enablers	Capabilities	Economic possibilities	Apple iOS & App Store
Modularity	<ul style="list-style-type: none"><li>• Create interdependent sets of offerings that can add value to the final customer</li></ul>	<ul style="list-style-type: none"><li>• Final customers have some choice in picking from a limited menu</li><li>• An ecosystem orchestrator curates and manages the limited menu:<ul style="list-style-type: none"><li>• decisions on complementors and rules of engagement to define the boundaries of the basket from which final customers choose</li><li>• ensure that interdependencies are dealt with and common objectives are met</li></ul></li></ul>	<ul style="list-style-type: none"><li>• Choice driven according to the different customers segments, e.g., business, education, entertainment, kids, medical, shopping, travel</li><li>• Embedded in iOS SDK; review safety, performance, business, design, legal guidelines; advance standards for specific areas, e.g., medical</li></ul>

# How to organise economic activity (1/2)

How to organise economic activity			
Examples	Arrangement	Dynamics	Trade-offs
Specialized corporate IT systems	Market-based, arms-length procurement	<ul style="list-style-type: none"> <li>Final customer chooses and combines products, services and complements</li> </ul>	<ul style="list-style-type: none"> <li>High flexibility/variety</li> <li>High cost, slow (additional effort at integration)</li> <li>Higher individual performance possibly at expense of lower joint performance</li> </ul>
Apple iOS & App Store	Ecosystem-based structure	<ul style="list-style-type: none"> <li>Final customer chooses from a curated set of ecosystem core components and complements</li> <li>Orchestrator gives critical components; sets the terms of engagement; decides who can complement; does not fully own them</li> <li>Organizations come together by co-specializing with each other, creating bonds that engender collaboration, without excluding competition</li> </ul>	<ul style="list-style-type: none"> <li>Retain flexibility</li> <li>Improve cost, speed</li> <li>Improve trade-off between joint and individual performance</li> </ul>

# How to organise economic activity (2/2)

How to organise economic activity			
Examples	Arrangement	Dynamics	Trade-offs
Apple iOS pre-App Store	Purchase via integrated firm or supply chain	<ul style="list-style-type: none"><li>• Final customer buys package</li><li>• System integrator or main supplier selects, pays and integrates complements and components</li></ul>	<ul style="list-style-type: none"><li>• Lower flexibility/variety</li><li>• Inexpensive, fast (no additional effort at integration)</li><li>• Higher joint performance possibly at expense of lower individual performance</li></ul>

# Complementor relations (1/2)

Categories	Sources of strength	Downsides	Assumptions	Apple iOS & App Store
Hard-power – inducements or coercion to get what you want	<ul style="list-style-type: none"> <li>Typically based on traditional sources of strength, such as market share, brand equity, control of distribution channels, or cash.</li> <li>Reduce your dependence on complementors by producing some or all strategically significant complements in-house.</li> </ul>	<ul style="list-style-type: none"> <li>Resource requirements</li> <li>Discouragement of deep cooperation</li> <li>Inspire backlash</li> </ul>	<ul style="list-style-type: none"> <li>Extensive resources</li> <li>Narrower range of complements (affordable cost)</li> <li>Lower risk from specialization (affordable reassurance or insurance)</li> </ul>	<ul style="list-style-type: none"> <li>Strict guidelines; thorough review and blocking</li> <li>Aggressive cut on payments</li> <li>Epic Games lawsuit: Apple mostly won; lost on payment steering; later halved the cut for small developers</li> </ul>

# Complementor relations (2/2)

Categories	Sources of strength	Downsides	Assumptions	Apple iOS & App Store
Soft-power – persuasion through indirect means	<ul style="list-style-type: none"> <li>• Use intangible resources to build legitimacy and trust</li> <li>• Provide complementors with market intelligence or information about future product plans to foster cooperation.</li> <li>• Support institutions that serve an industry or professional community.</li> <li>• Enter into strategic commitments to further a common goal, such as establishing a new standard or jointly developing a new technology.</li> </ul>	<ul style="list-style-type: none"> <li>• Slower, more diffuse, and more cumbersome to wield</li> <li>• Precise effects can be difficult to trace</li> </ul>	<ul style="list-style-type: none"> <li>• Weaker resource requirements</li> <li>• Broader range of complements</li> <li>• High risk from specialization</li> </ul>	<ul style="list-style-type: none"> <li>• Apple Events align short-term vision and hint at longer-term vision</li> <li>• Within its secrecy obsession, Apple shares private details with closer complementors</li> <li>• Part of +30 trade associations</li> <li>• Apple is hardly devoted to free and open standards, however it uses them strategically, e.g., OpenCL (leverage a mix of types of processors), WebKit (so standard-compliant browser engine that it became a standard)</li> </ul>



# Key strategic questions

Participants	Interests and roles	Key strategic questions		
Customers	<ul style="list-style-type: none"> <li>Desire for variety</li> <li>Ability to choose</li> </ul>	<ul style="list-style-type: none"> <li>How is my sector being transformed as a result of digital ecosystems?</li> </ul>		
Firms	<ul style="list-style-type: none"> <li>Impossible to have all potential complements in-house</li> </ul>		<ul style="list-style-type: none"> <li>What pain point am I resolving for the final customer? How do I compare to others from the vantage point of complementors?</li> </ul>	<ul style="list-style-type: none"> <li>What are my roles and goals in each ecosystem?</li> </ul>
Orchestrator	<ul style="list-style-type: none"> <li>Decisions on complementors and rules of engagement to define the boundaries of the basket from which final customers choose</li> <li>Ensure that interdependencies are dealt with and common objectives are met</li> </ul>		<ul style="list-style-type: none"> <li>How can data and analytics capabilities improve value propositions (through better knowledge of customers, complementors, and bundles)?</li> </ul>	<ul style="list-style-type: none"> <li>How can I make sure that I am forming a true ecosystem rather than an ego-system (myself at the centre)?</li> </ul>

# References

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