

# Building Adaptive Systems for a Fast Flow of Change

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#### Competitors' Actions and Inertia to Change







#### Constant Flow of Changes $\rightarrow$ Continuous Adaption



Constant flow of changes in uncertain environments

Continuous adaption

#### 3 Perspectives to Build Adaptive Systems



Business-Strategy



Software-Design/ -Architecture



Team-Organization







w/ Wardley Mapping

w/ Domain-Driven Design

w/ Team Topologies



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## The Strategy Cycle of Wardley Mapping









Position

Value Chain









Who are the users?

What are the user needs?

What are the components to fulfill the user needs incl. dependencies?









Cheat Sheet of Evolution Characteristics		stics	Genesis	Custom-			Product		Commodity			
Stage				Built			+ rentai		+ utility			×
Charac	cteristics											
Ubiquity Certainty Publication Types		Rare		Slowly increasing consumtpion		Rapidly consum	Rapidly increasing consumption		Widespread and stabilising.			
		Poorly understood		Rapid increases in learning		Rapid i for pur	Rapid increases in use / fit for purpose		Commonly understood (in terms of use)		stood	
		Normally decribe the wonder of the thing		Build / construct / awareness and learning		Mainte installa	Maintenance / operations / installation / feature		Focused on use			
Genera	al Properties											
	Market	Undefine	d market	Forming	market	Growin	Growing market		Mature market			
	Knowledge management	Uncertain		Learning on use		Learnii	Learning on operation		known / accepted			
Ma	arket Perception	Chaotic (non linear)		Domain of experts		Increas use	Increasing expectation of use		Ordered (appearance of being linear) / trivial		nce of ial	
	User perception	Different / confusing / exciting / surprising		Leading edge / emerging		Increas disappo	Increasingly common / disappointed if not used		Standard / expected		ed	
Perce	eption in Indusry	Competitive advantage / unpredictable / unknown		Comptitive advantage / ROI / case examples		Advant implem	Advantage through implementation / features		Cost of doing business		ness	
	Focus of value	High future worth		Seeking profit / ROI?		High p	High profitability		High volume / reducing margin		ucing	
	Understanding	Poorly Understood / unpredictable		Increasing understanding / development of measures		/ Increas constar needs /	Increasing education / constant refinement of needs / measures		Believed to be well defined / stable / measurable		1	
	Comparison	Constantly changing / a differential / unstable		Learning from others / testing the water / some evidential support		Feature	Feature difference		Essential / operational advantage		ional	
	Failure	High / tolerated / assumed		Moderate / unsurprising but disappointed		Not tole constar	Not tolerated, focus on constant improvement		Operational efficiency and surprised by failure		ency failure	
	Market action	Gambling / driven by gut		Exploring a "found" value		Market listenir	Market analysis / listening to customers		Metric driven / build what is needed		ild	
	Efficiency	Reducing the cost of change (experimentation)		Reducting cost of waste (Learning)		Reduct (Learni	Reducting cost of waste (Learning)		Reducing cost of deviation (Volume)		)	
J	Decision Drivers	Hertiage	/ culture	Analyses	& synthesis	Analys	es & synthe	sis	Previou	us experien	ce	

Source: https://blog.gardeviance.org/2016/04/whats-in-wardley-map-and-need-for-cheat.html

Landscape

## The Strategy Cycle of Wardley Mapping













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#### The Climatic Patterns (extract)



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#### The Climatic Patterns (extract)









Climate



#### The Strategy Cycle of Wardley Mapping







#### Evolution



Custom-Built

Product (+rental)

Value Chain

Invisible

Genesis



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Commodity (+utility)


















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# Applying Doctrinal Principles



# The Strategy Cycle of Wardley Mapping



# Gameplay

Leadership







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# Domain-Driven Design (DDD)



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## Domain-Driven Design (DDD) - Terminology



Tackling Complexity in the Heart of Software



Strategic Design Tactical Design

Core Subdomain Supporting Subdomain Generic Subdomain

Context Maps Anti-Corruption Layer Shared Kernel Open Host Service Separate Ways Partnership Customer-Supplier Conformist Problem Space Solution Space

Bounded Context Ubiquitous Language

Domain Model Entity Value Object Aggregate Repository Factory Application Service Domain Service Domain Event

# Domain-Driven Design (DDD)



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Strategic Design (Problem Space)











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### Domain Models & Bounded Contexts



#### Domain Models & Bounded Contexts



#### Bounded Contexts & Evolution Stages











 Core
 Discovering the core domain

 Domain
 Discovering the core domain

 Decomposing into modular components (Bounded Contexts)
 O

 O
 O
 O







### Putting it together ...


### Conway's Law

"Any organization that designs a system [...] will produce a design whose structure is a copy of the organization's communication structure."

Melvin Conway

## Challenges w/ Functional Silo Teams



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## To optimize for flow of change requires ...



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"Overall, the Team Topologies approach advocates for organization design that optimizes for flow of change and feedback from running systems."



### Stream-aligned











Stream-aligned team

Platform team

Enabling team



Complicated subsystem team



Increasing autonomy

Reducing cognitive load







## Intermittent Interactions between Team Types





Component-as-a-Service



Collaboration



X-as-a-Service



Facilitating



Build in-house Use/buy off-the-shelf product Outsource to utility suppliers

Core Domain Supporting Subdomain Generic Subdomain

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### Possible Team Constellations



#### Infrastructure Change

















### Infrastructure Change





# Team Topologies & Doctrine



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#### Some References



**O'REILLY**°

#### What Is Domain-Driven Design?

Vladik Khononov

#### REPORT



WARDLEY MAPS TOPOGRAPHICAL INTELLIGENCE IN BUSINESS



SIMON WARDLEY





https://medium.com/wardleymaps https://learnwardleymapping.com/ https://github.com/wardley-maps-community/awesomewardley-maps https://githup.com/ddd-crew https://www.dddheuristics.com