

Exploring Characteristics of Code Churn

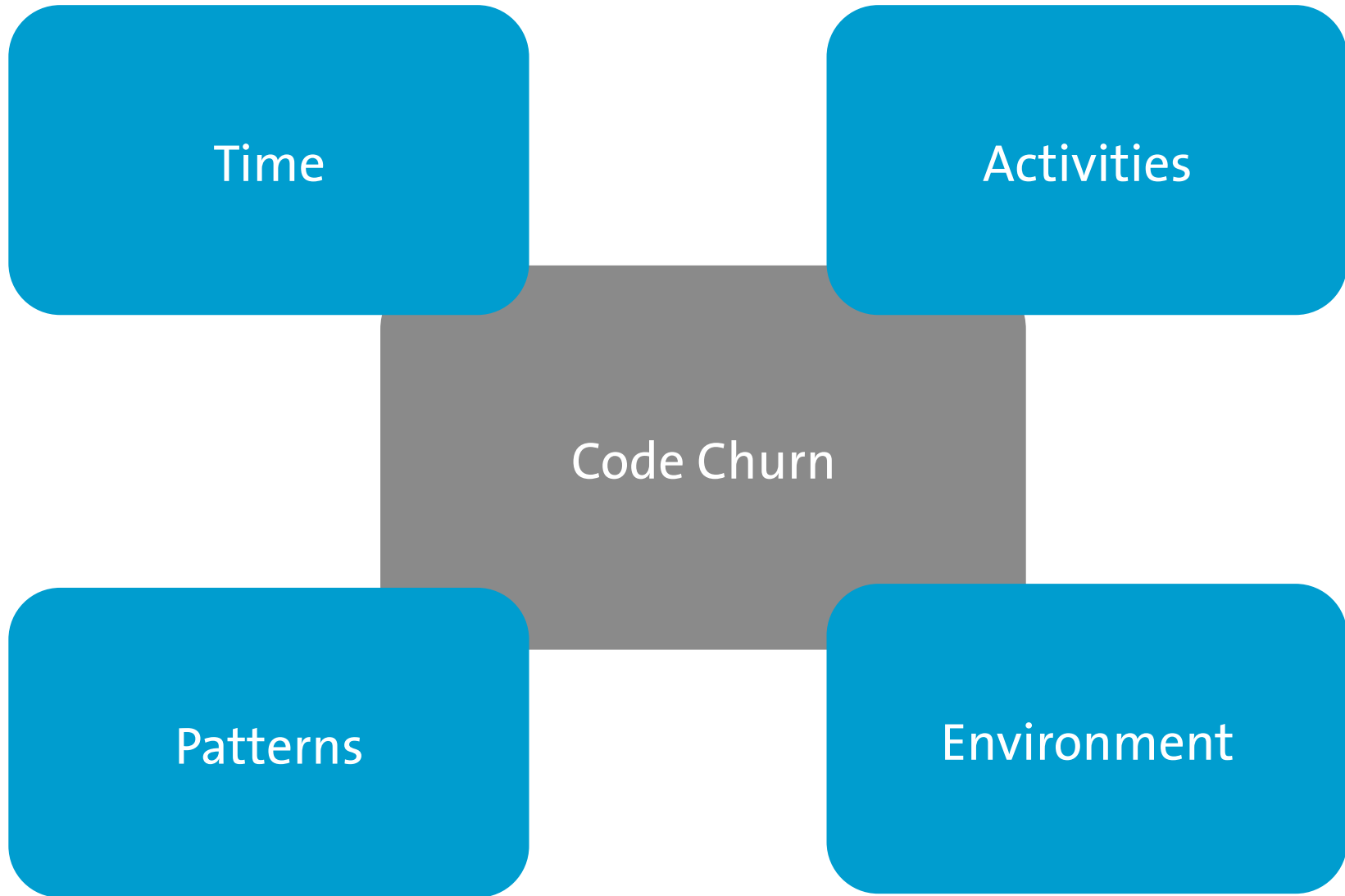
@JMKraaijeveld

@EricBouwers



Software Improvement Group





Code Churn

Aap
Noot
Mies
Wim
Zus
Jet

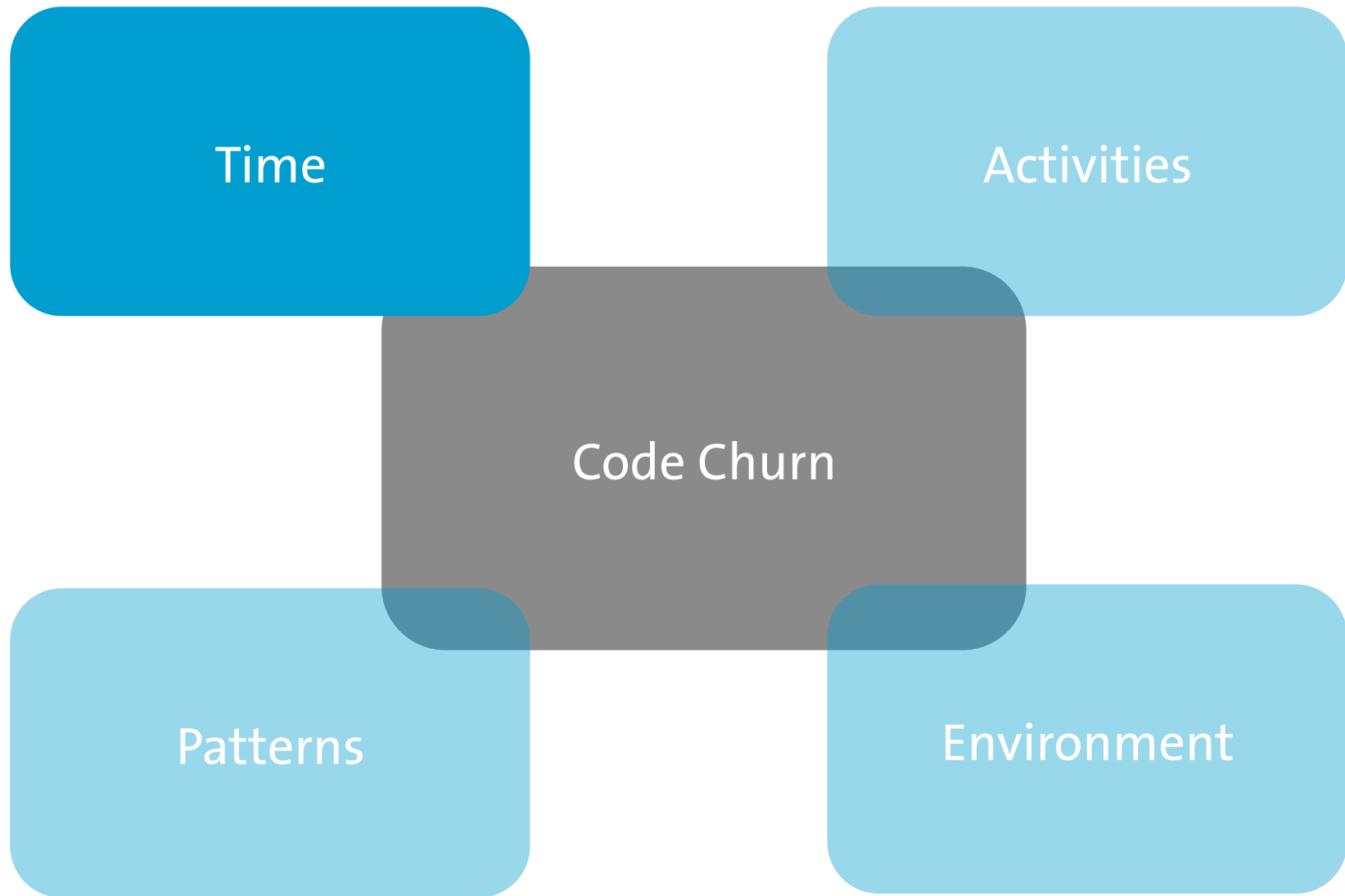
Aap
Noot
Wim
Suus
Jet
Teun

Time

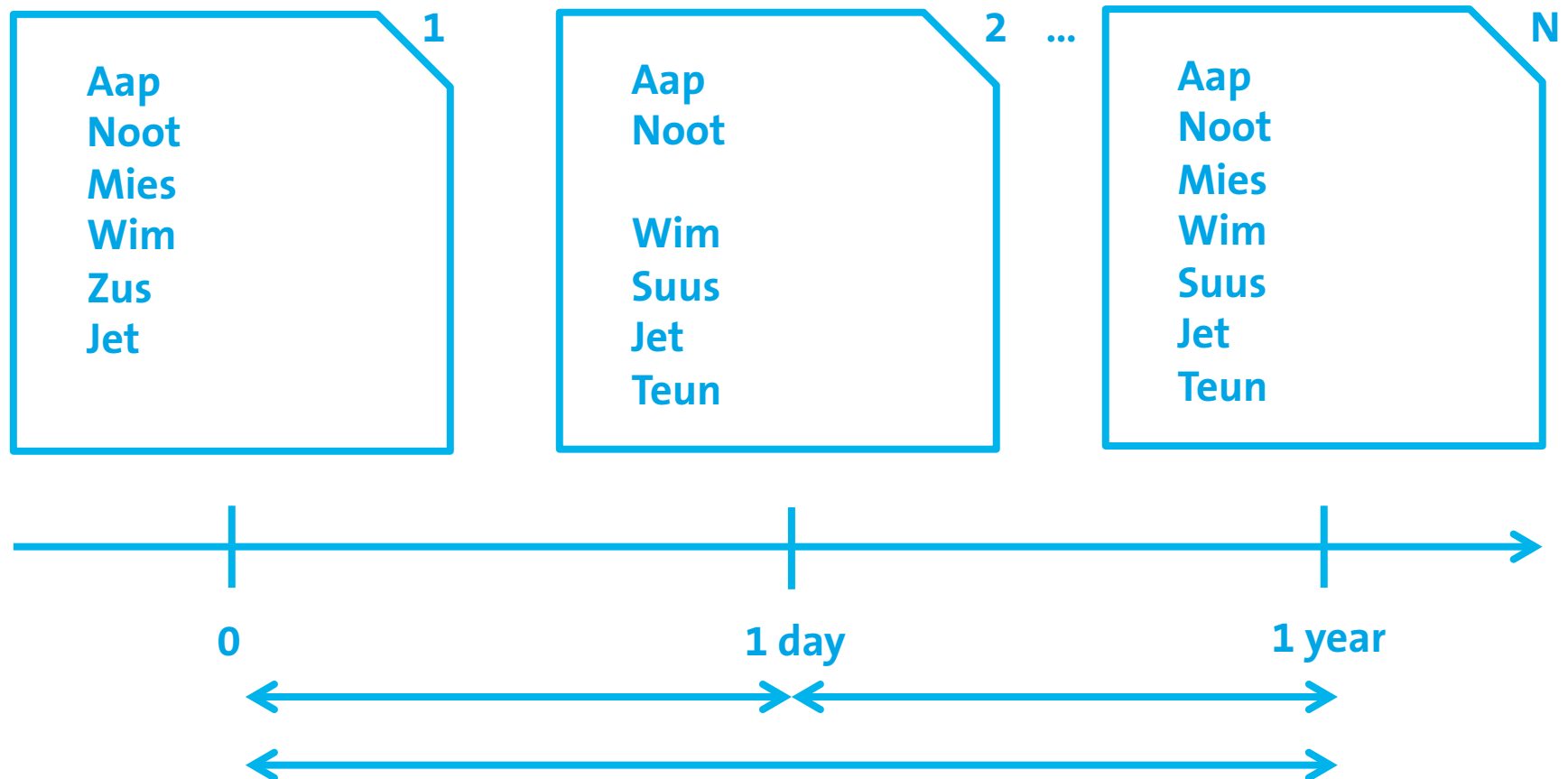
Deleted line

Changed line

Added line



Time

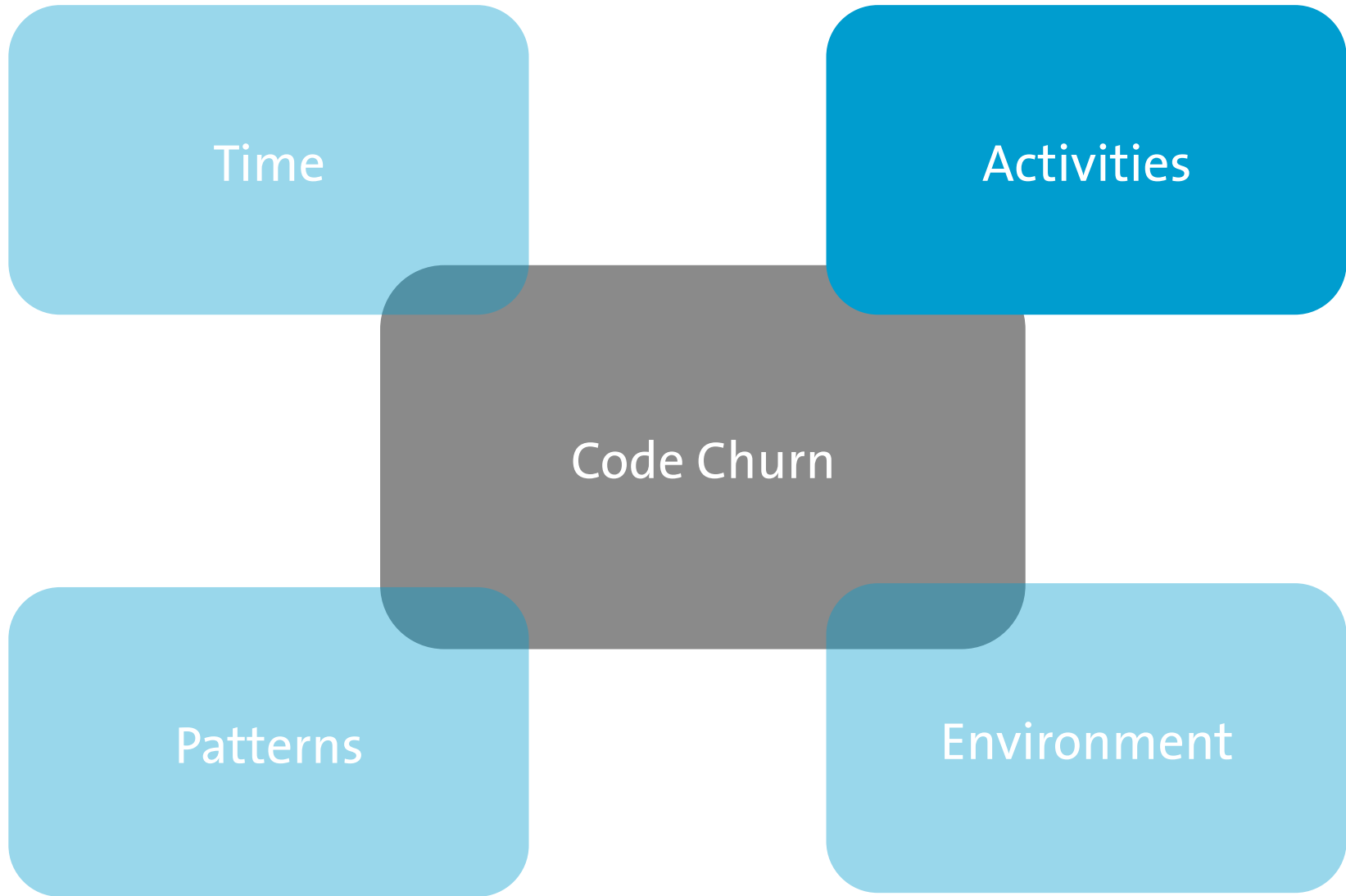


Time

2011	Relative churn			
System	Per commit	Weekly	Monthly	Yearly
Django	112.0%	106.7%	103.7%	93.6%
Git	19.3%	17.7%	17.5%	16.8%
Linux	22.9%	19.7%	19.6%	17.7%
MongoDB	70.1%	65.1%	64.0%	61.6%
NodeJS	149.3%	131.7%	126.7%	113.7%
Ruby on Rails	44.0%	38.8%	37.3%	32.0%
Spring Framework	23.7%	21.2%	19.8%	15.1%
Symfony	192.1%	158.6%	150.1%	120.0%
PostgreSQL	27.8%	26.5%	26.3%	25.6%
Subversion	26.7%	25.4%	25.0%	24.8%

Time

2011	Relative churn			
System	Per commit	Weekly	Monthly	Yearly
Django		-4.8%	-7.5%	-16.4%
Git		-8.5%	-9.3%	-13.2%
Linux		-13.9%	-14.4%	-22.4%
MongoDB		-7.2%	-8.7%	-12.1%
NodeJS		-11.8%	-15.1%	-23.9%
Ruby on Rails		-12.0%	-15.3%	-27.3%
Spring Framework		-10.4%	-16.4%	-36.1%
Symfony		-17.4%	-21.8%	-37.5%
PostgreSQL		-4.9%	-5.7%	-8.1%
Subversion		-4.7%	-6.2%	-7.0%
		-9.58%	-11.76%	-18.73%



Classification

Aap
Noot
Mies
Wim
Zus
Jet

Aap
Noot

Wim
Suus
Jet
Teun

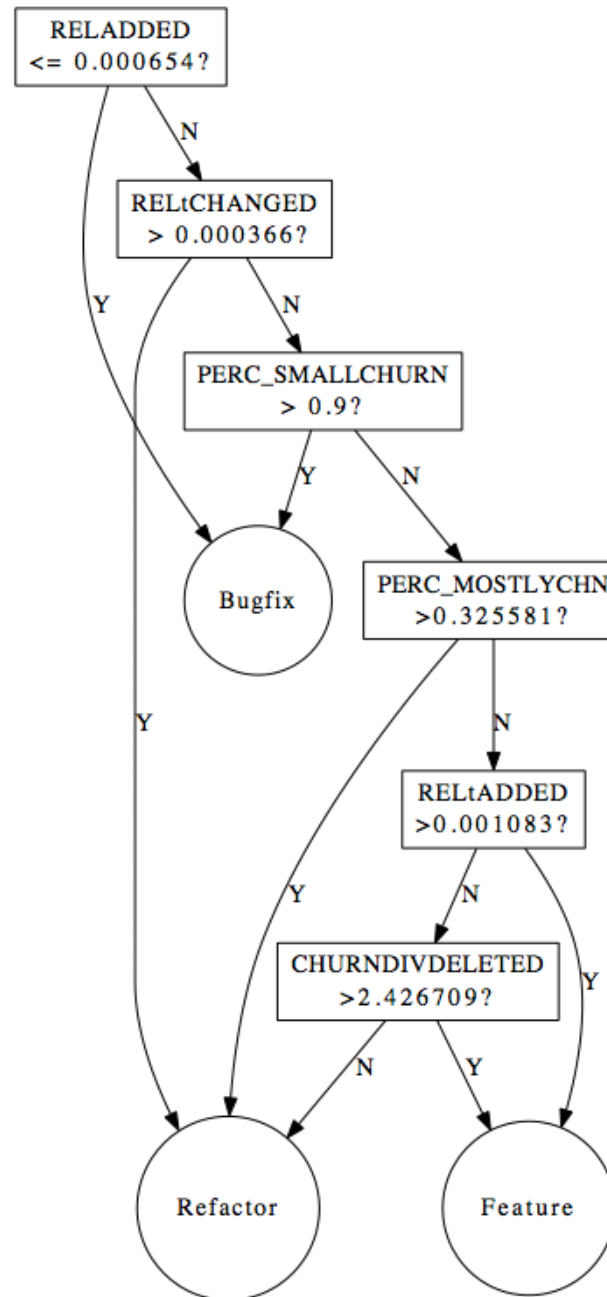
Error
correction?

Enhancement?

Adaptation?

Time

Classification



Time

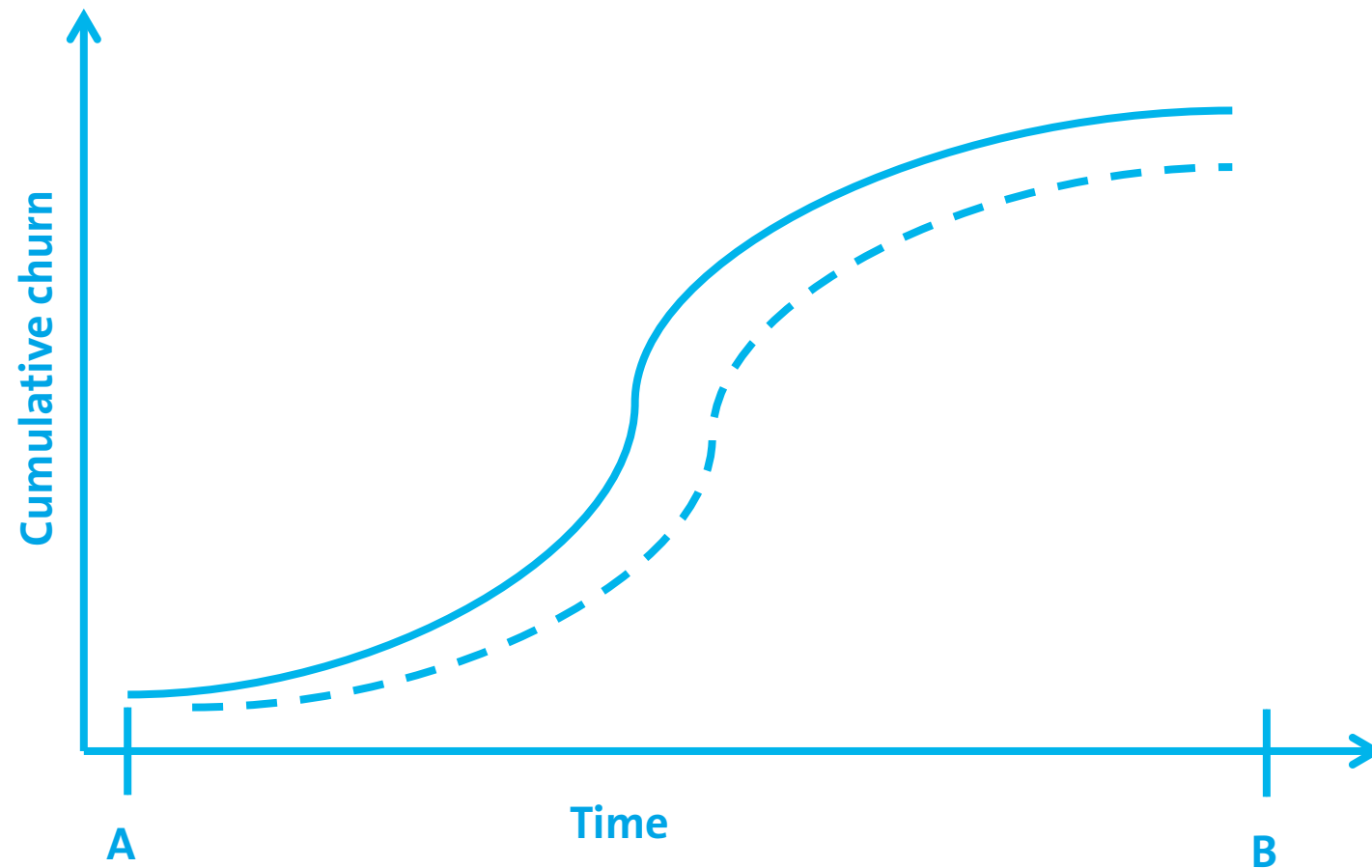
Activities

Code Churn

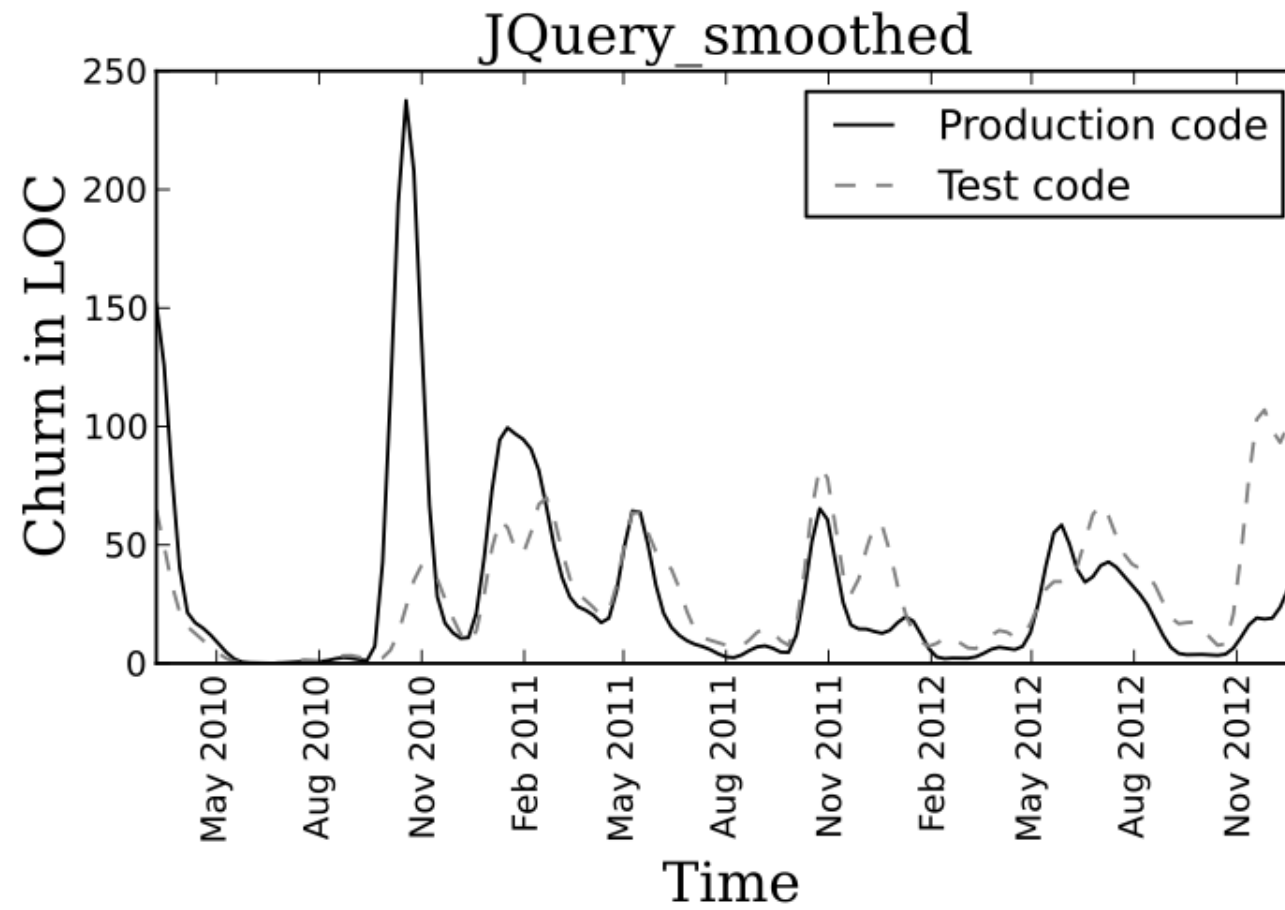
Patterns

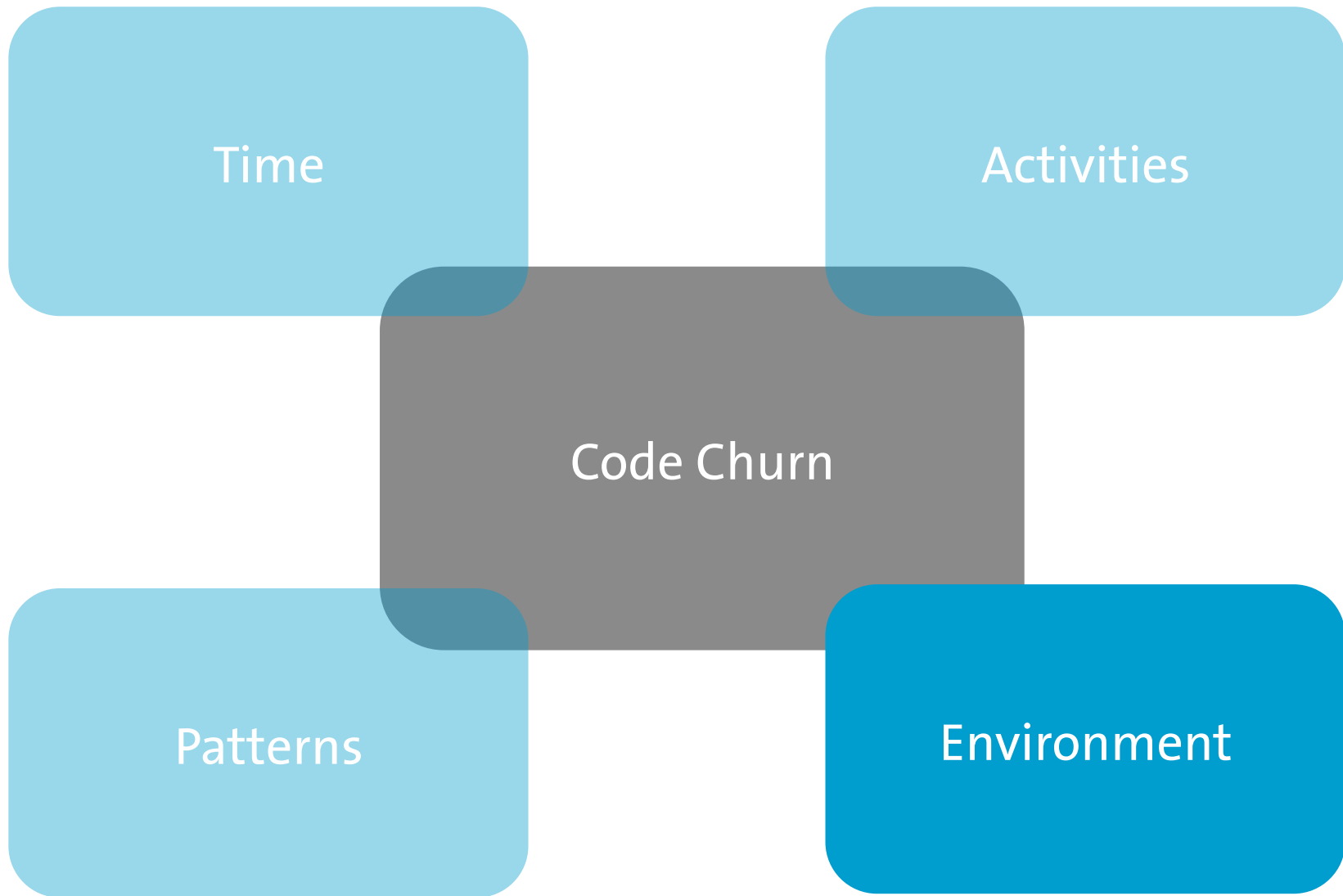
Environment

Patterns



Patterns







Environment



more = more?

More issues = More questions

More churn = More questions

Release \neq More questions

More churn ? More issues

