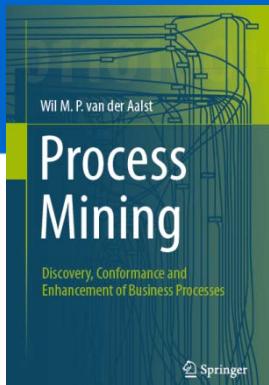


Process Mining: Data Science in Action

Mining Spaghetti Processes

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www.processmining.org



Technische Universiteit
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University of Technology

Where innovation starts

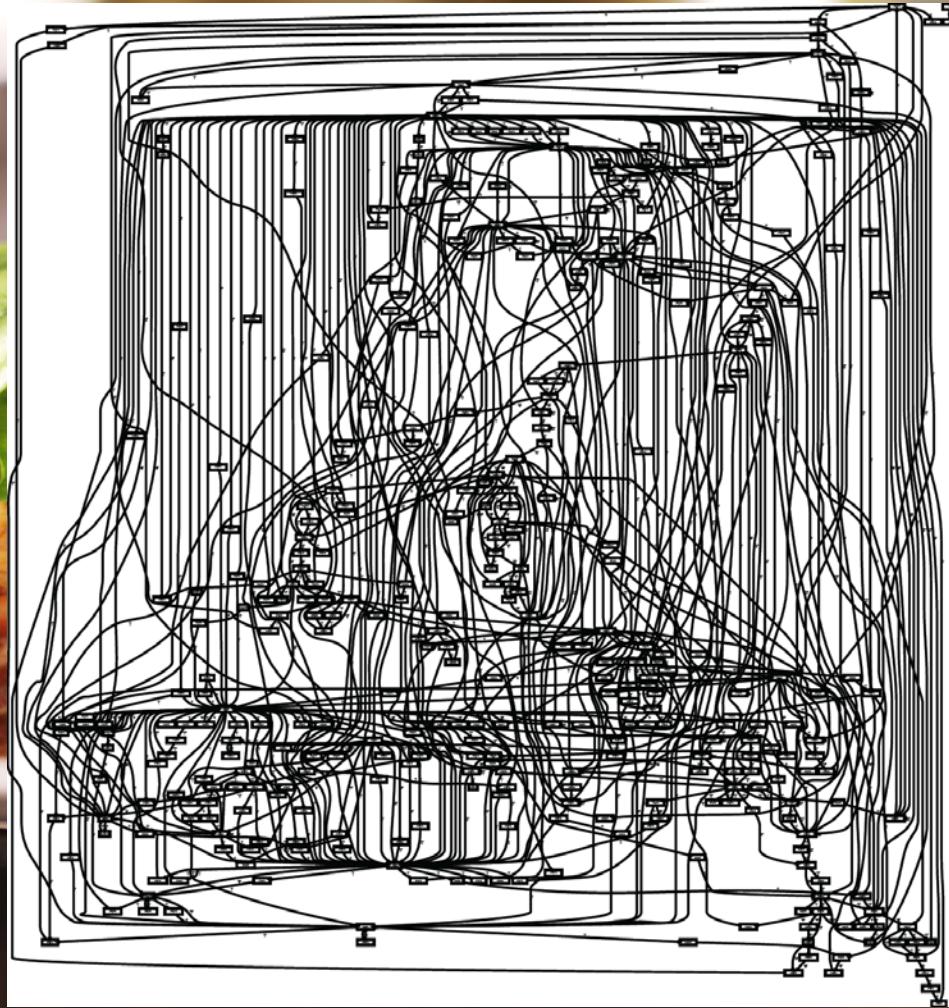


spectrum of processes

**unstructured
irregular
flexible
variable**

**structured
regular
controllable
repetitive**

Today's focus

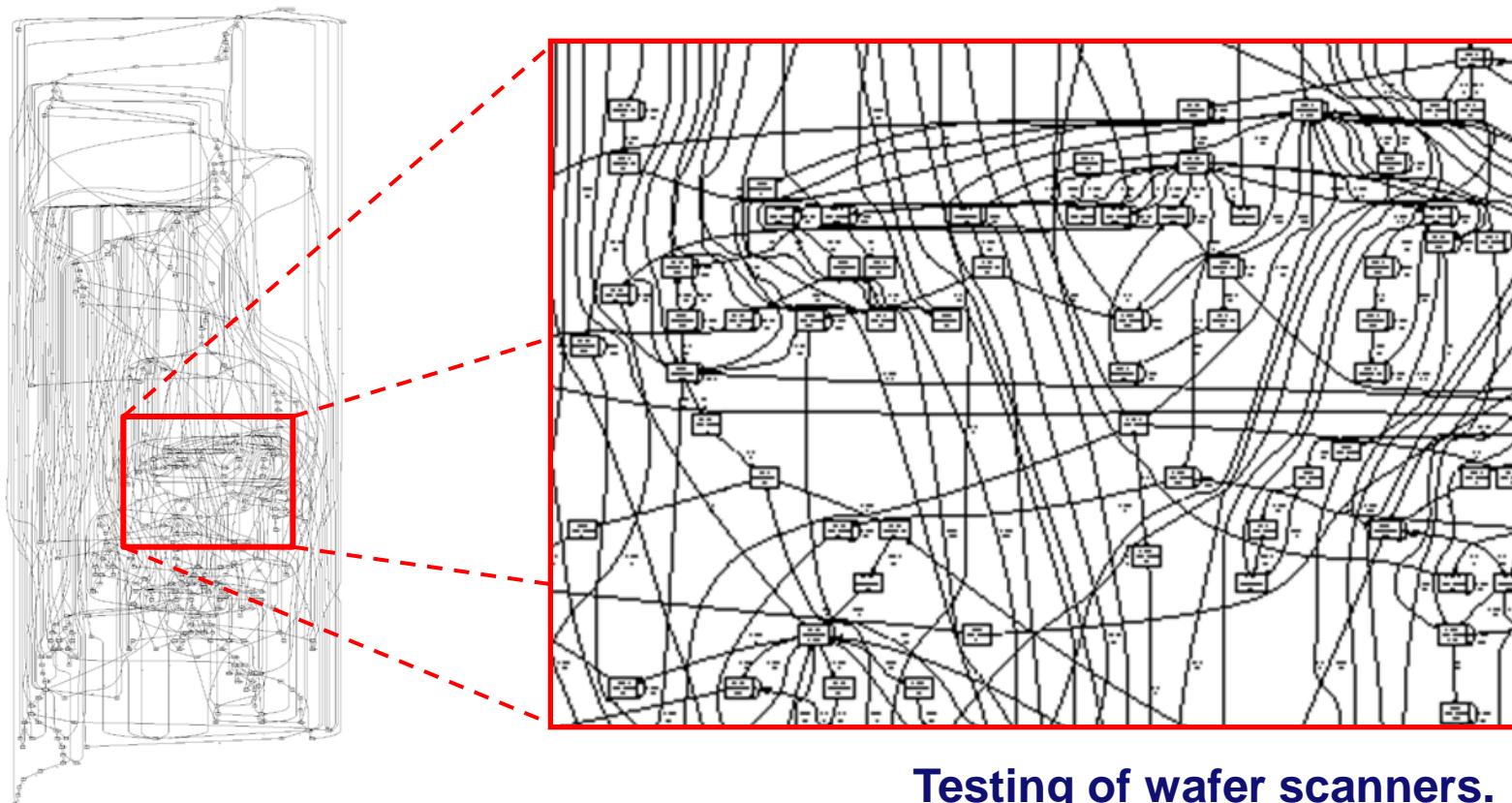


Example of a Spaghetti process

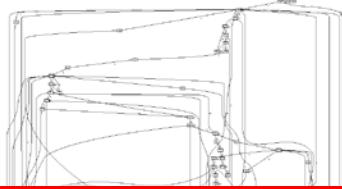


Spaghetti process describing the diagnosis and treatment of 2765 patients in a Dutch hospital. The process model was constructed based on an event log containing 114,592 events. There are 619 different activities (taking event types into account) executed by 266 different individuals (doctors, nurses, etc.).

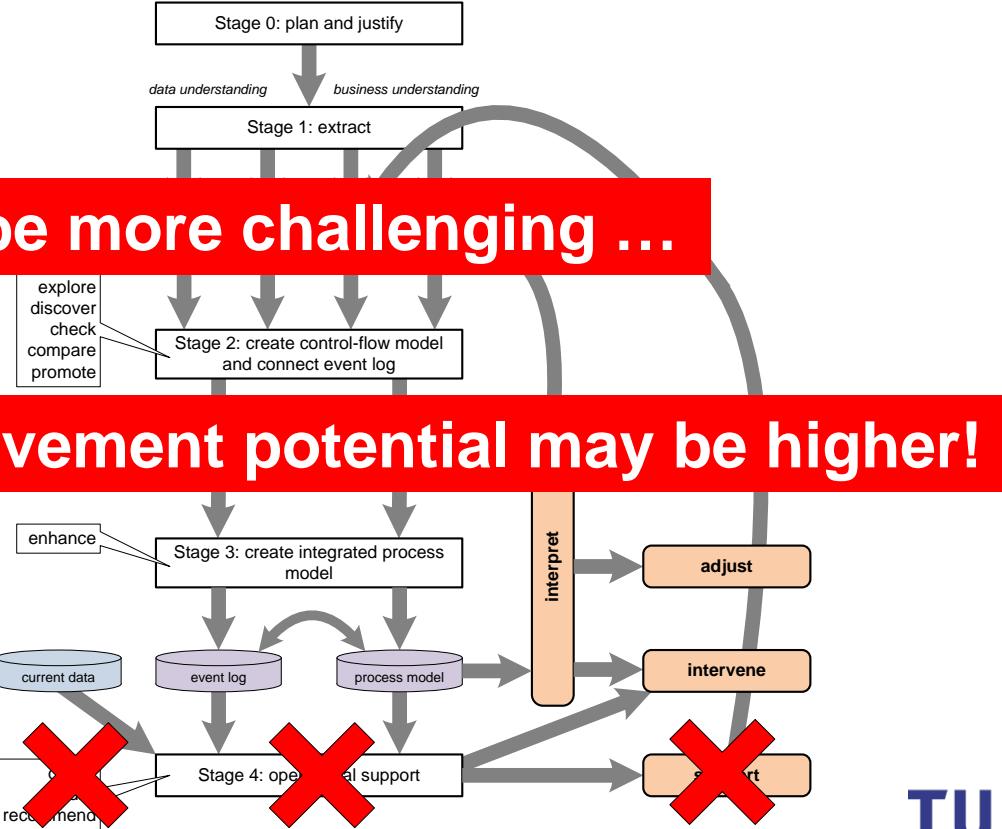
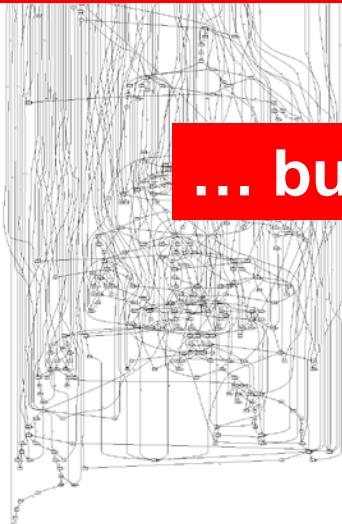
Another example of a Spaghetti process



The last stage(s) of the L* lifecycle model cannot be reached for Spaghetti processes



Earlier stages may also be more challenging ...



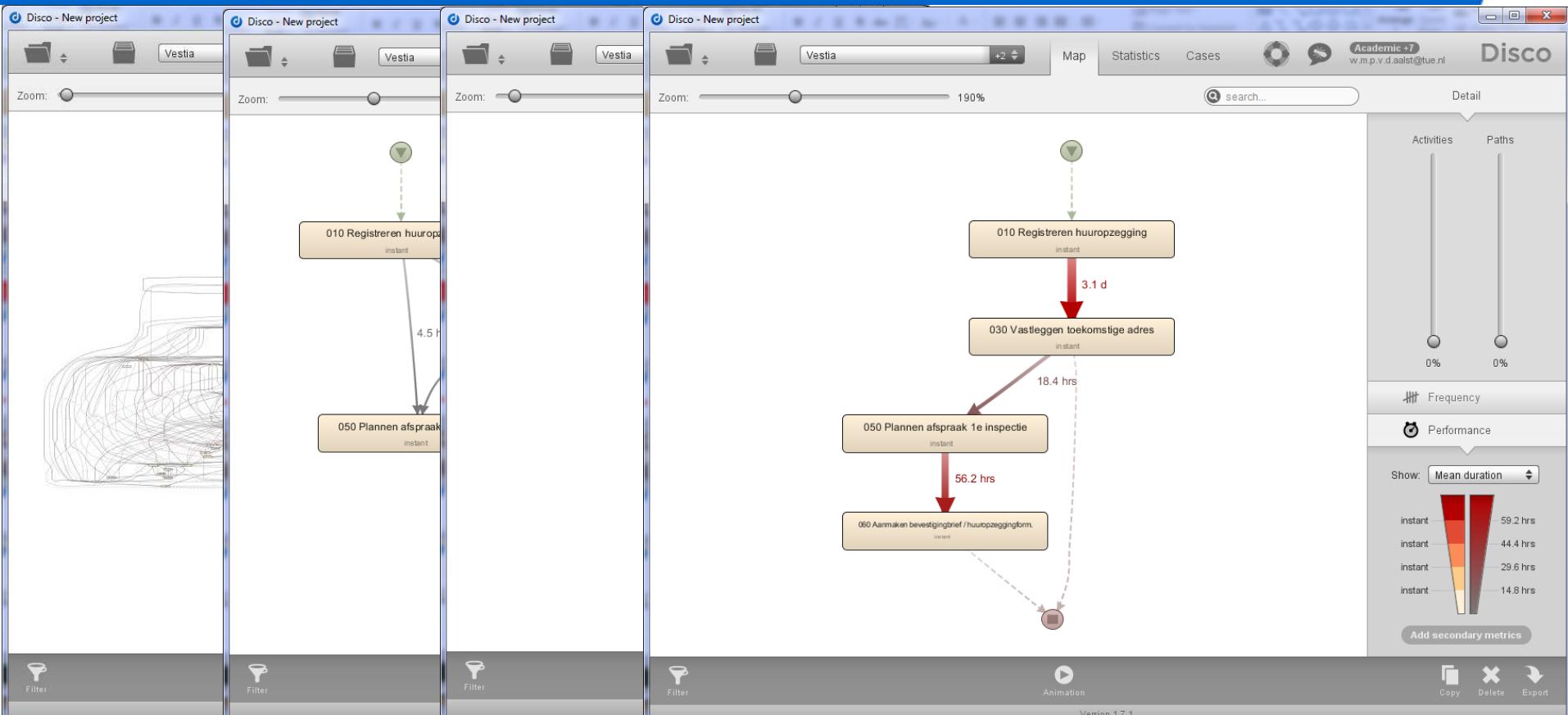
Don't be afraid of Spaghetti ...



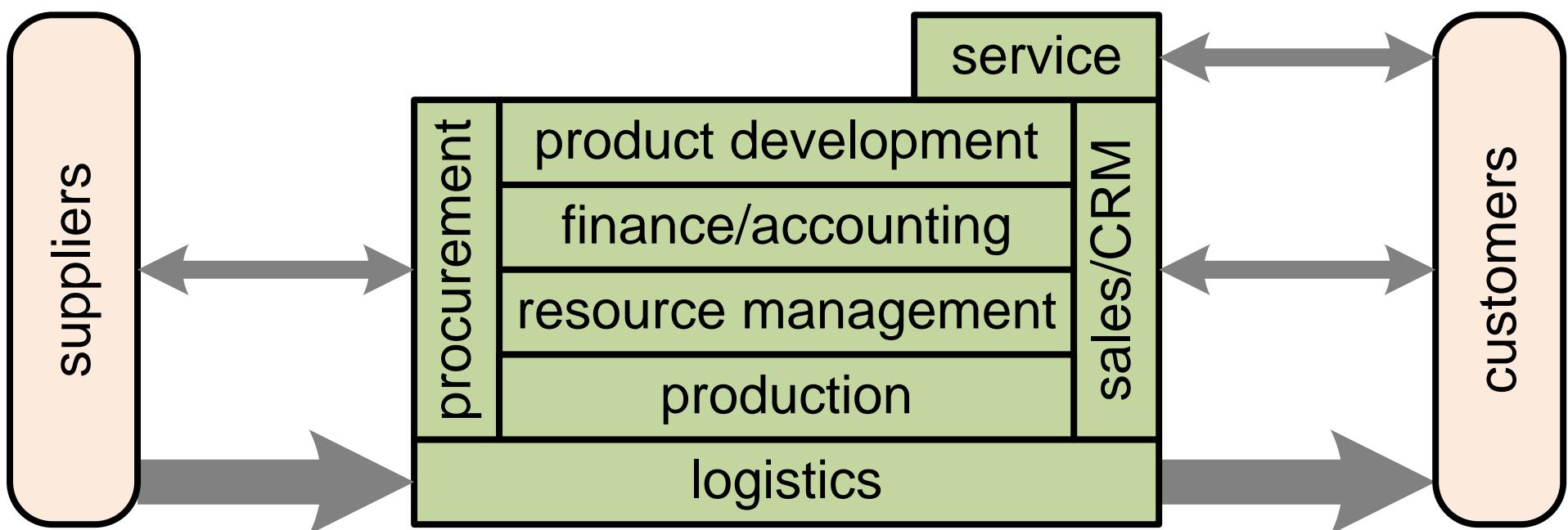
Simplification

- Focus on a **subset of activities**:
 - only most frequent ones
 - selected region of process (e.g., backoffice)
- Focus on a **subset of cases**:
 - homogeneous groups of cases (clustering)
 - natural subclasses (e.g., gold customers)
- Focus on a **subset of paths**:
 - only most frequent ones

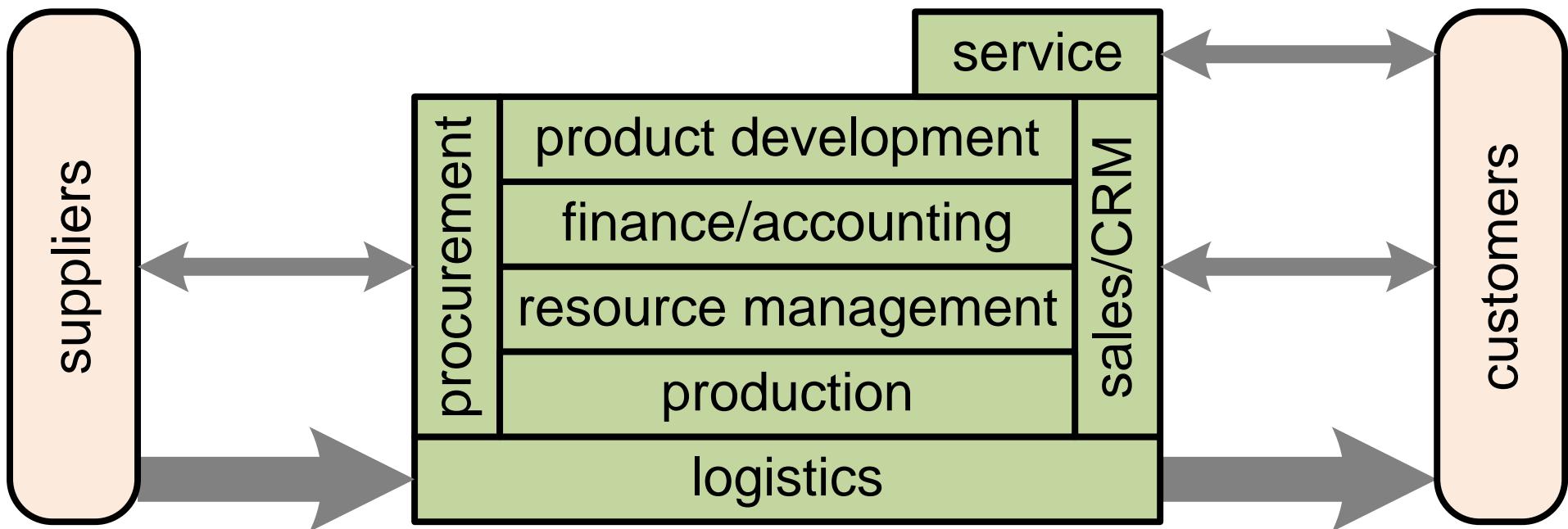
Example: Disco



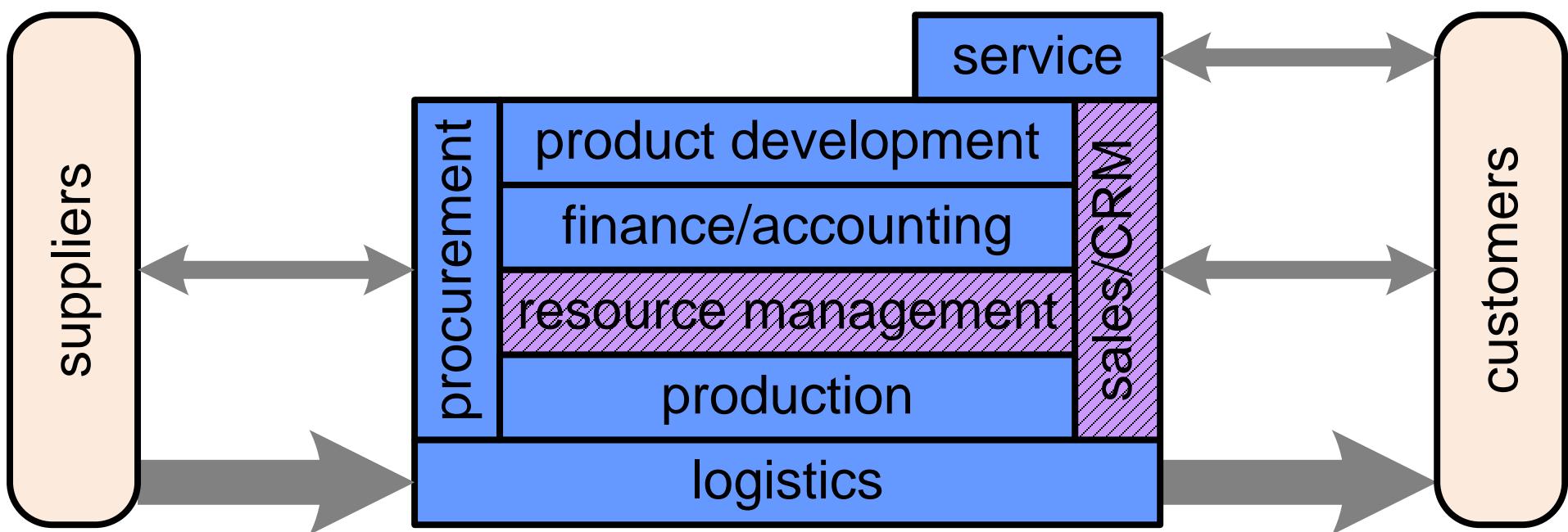
Functional areas within an organization



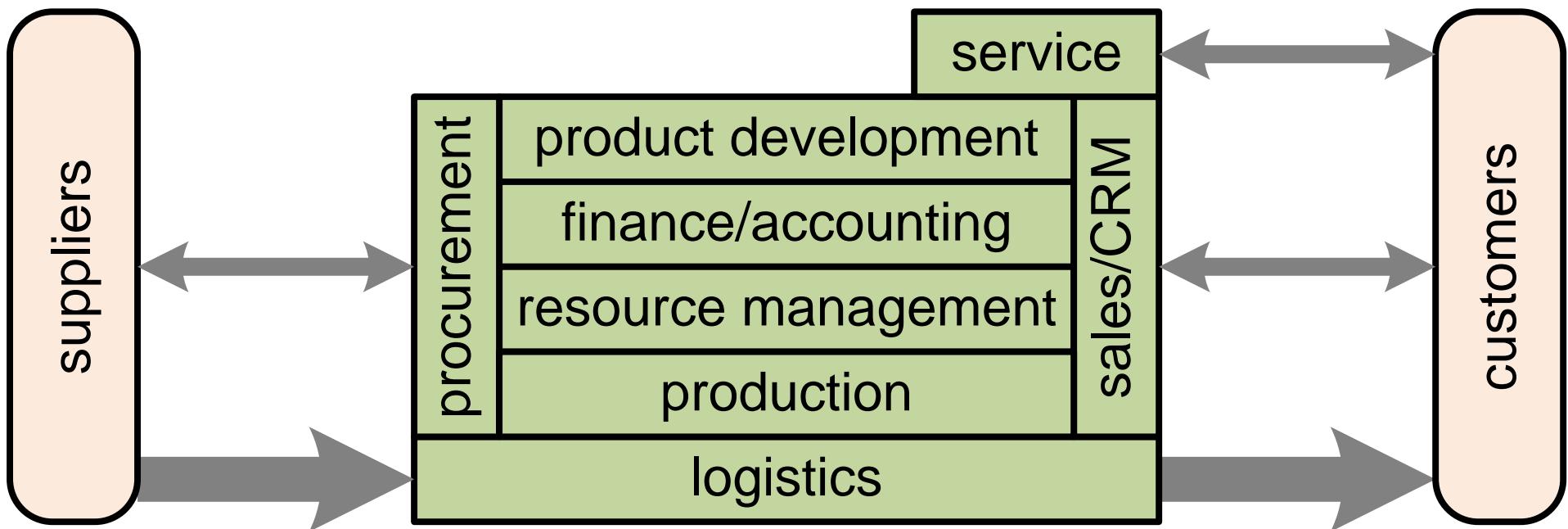
Where do we find Lasagna processes?



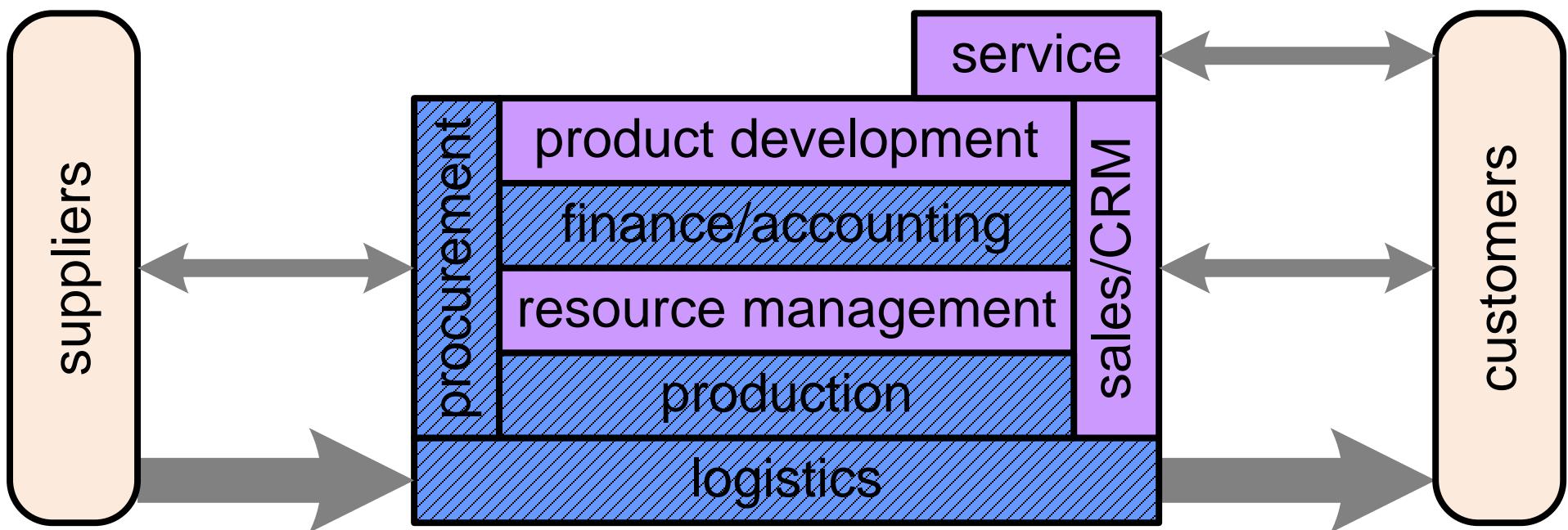
Where do we find Lasagna processes?



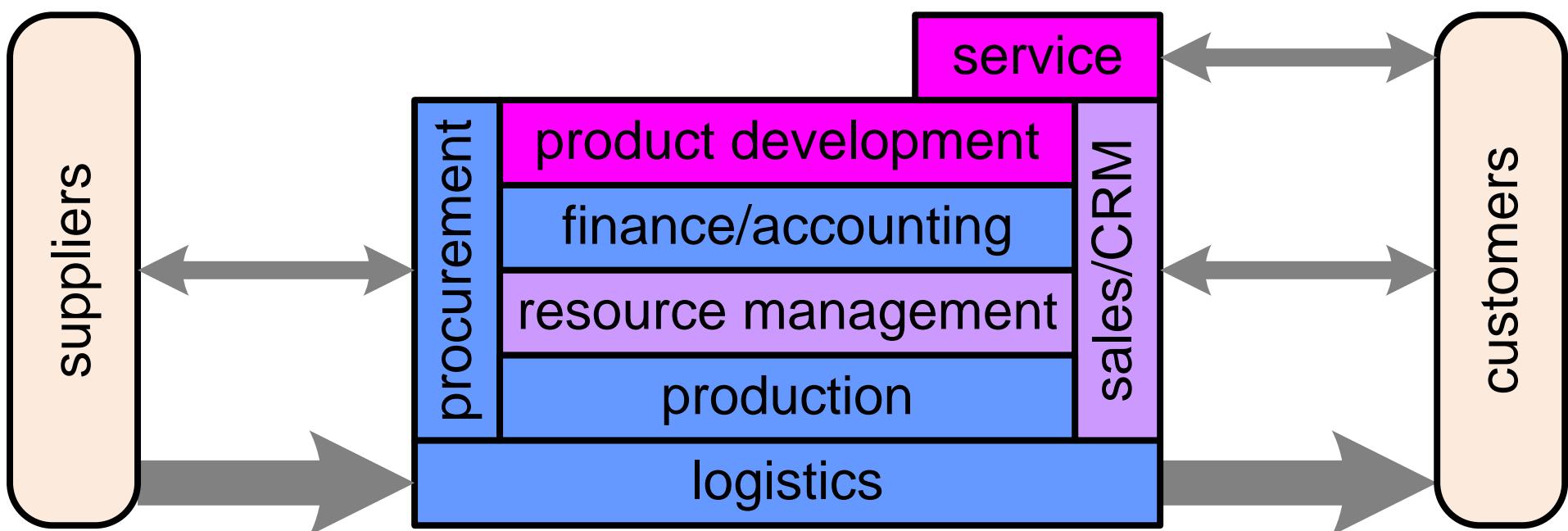
Where do we find Spaghetti processes?



Where do we find Spaghetti processes?



In some areas we can find both ...





- Detect and remove bottlenecks
- Analyze root causes for deviations
- Comparative process mining
- Operational support (prediction, etc.)
- ...
- Process discovery: show mirror
- Highlight important problems
- From “management by PowerPoint” to “evidence-based” process improvement
- ...

Part I: Preliminaries

Chapter 1

Introduction

Chapter 2

Process Modeling and Analysis

Chapter 3

Data Mining

Part II: From Event Logs to Process Models

Chapter 4

Getting the Data

Chapter 5

Process Discovery: An Introduction

Chapter 6

Advanced Process Discovery Techniques

Part III: Beyond Process Discovery

Chapter 7

Conformance Checking

Chapter 8

Mining Additional Perspectives

Chapter 9

Operational Support

Part IV: Putting Process Mining to Work

Chapter 10

Tool Support

Chapter 11

Analyzing “Lasagna Processes”

Chapter 12

Analyzing “Spaghetti Processes”

Part V: Reflection

Chapter 13

Cartography and Navigation

Chapter

Epilogue

Wil M. P. van der Aalst
Process Mining
Discovery, Conformance and Enhancement of Business Processes

