Are your models agile, or fragile?

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Agile?

Overview

- Definition
- Concepts
- Examples
- Objections

Two approaches

"Big design up front" (BDUF)

| Under-stand | Design | Develop | | Release (packaging, doc, etc…) |

Develop

Core architecture

Include formal milestones and possibly interim

Value engineering
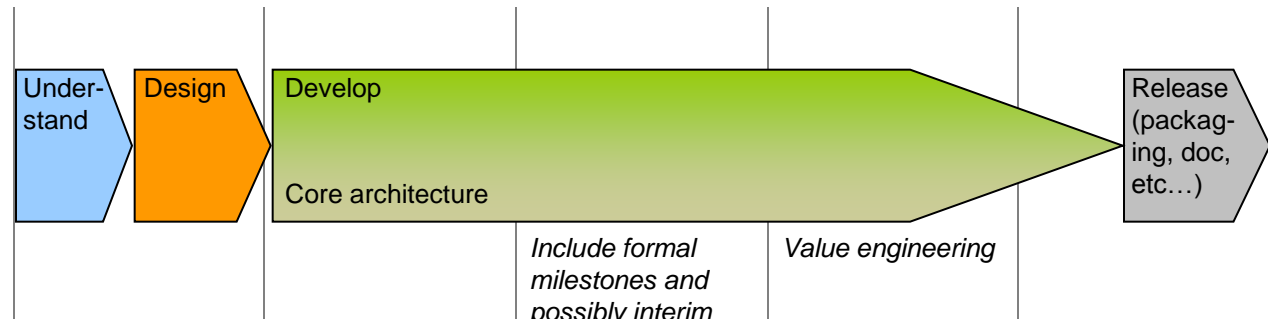
Manifesto for agile development

We are uncovering better ways of developing software by doing it and helping others do it. Through this work we have come to value:

Individuals and interactions over processes and tools

Working software over comprehensive documentation

Customer collaboration over contract negotiation

Responding to change over following a plan

That is, while there is value in the items on the right, we value the items on the left more.

http://www.agilemanifesto.org/

Principles of agile development

- Our highest priority is to satisfy the customer through **early and continuous delivery** of valuable software.
- Welcome changing requirements, even late in development. Agile processes **harness change** for the customer's competitive advantage.
- Deliver **working software frequently**, from a couple of weeks to a couple of months, with a preference to the shorter timescale.
- Business people and developers must **work together daily** throughout the project.
- Build projects around **motivated individuals**. Give them the environment and support they need, and trust them to get the job done.
- The most efficient and effective method of conveying information to and within a development team is **face-to-face** conversation.
- Working software is the **primary measure** of progress.
- Agile processes promote sustainable development. The sponsors, developers, and users should be able to **maintain a constant pace** indefinitely.
- **Continuous attention** to technical excellence and good design enhances agility.
- **Simplicity** — the art of maximizing the amount of work not done — is essential.
- The best architectures, requirements, and designs emerge from **self-organizing teams**.
- At regular intervals, the team reflects on how to become more effective, then **tunes and adjusts** its behavior accordingly

Why change?
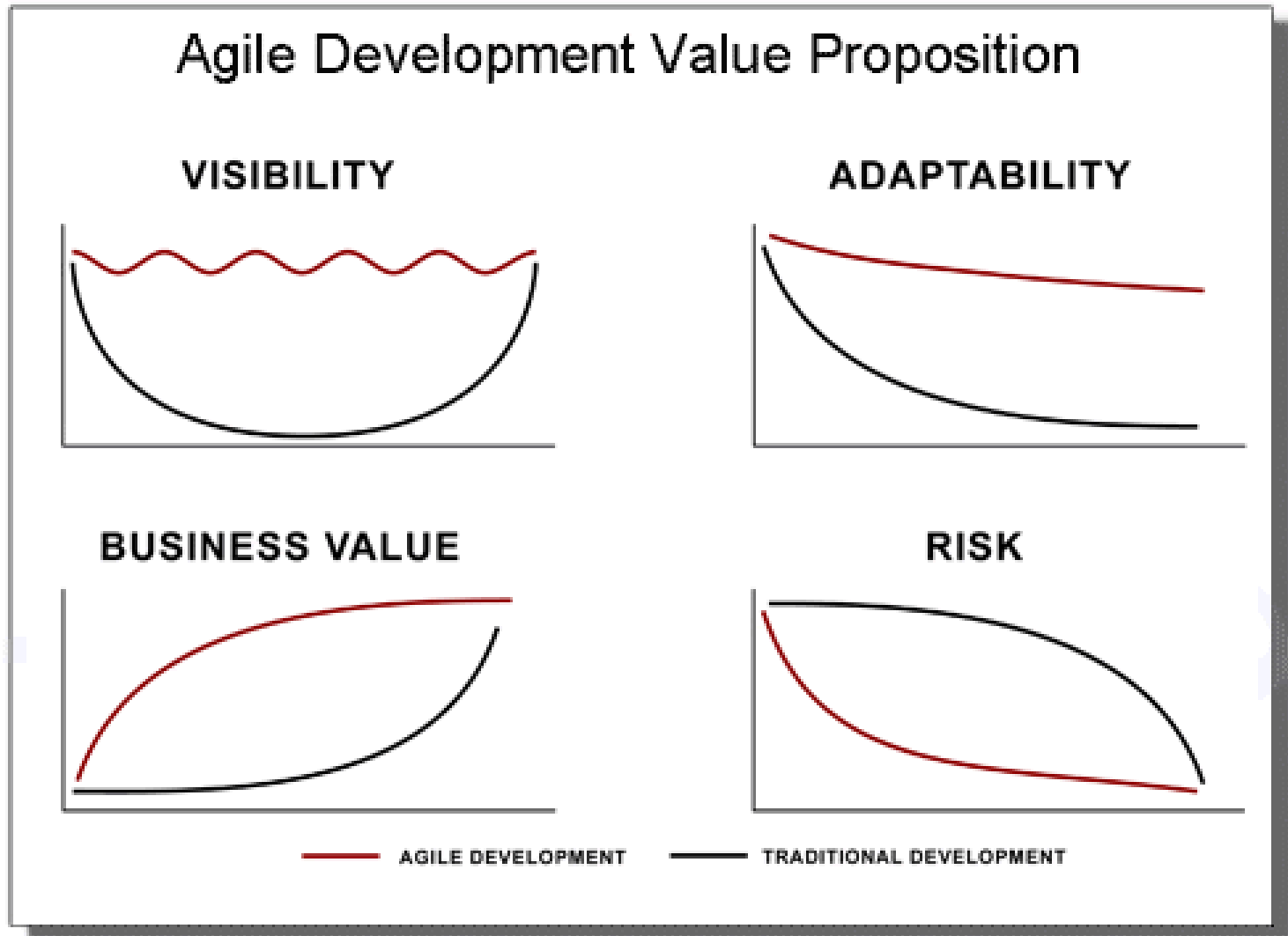
TLUMIP: the BDUF view
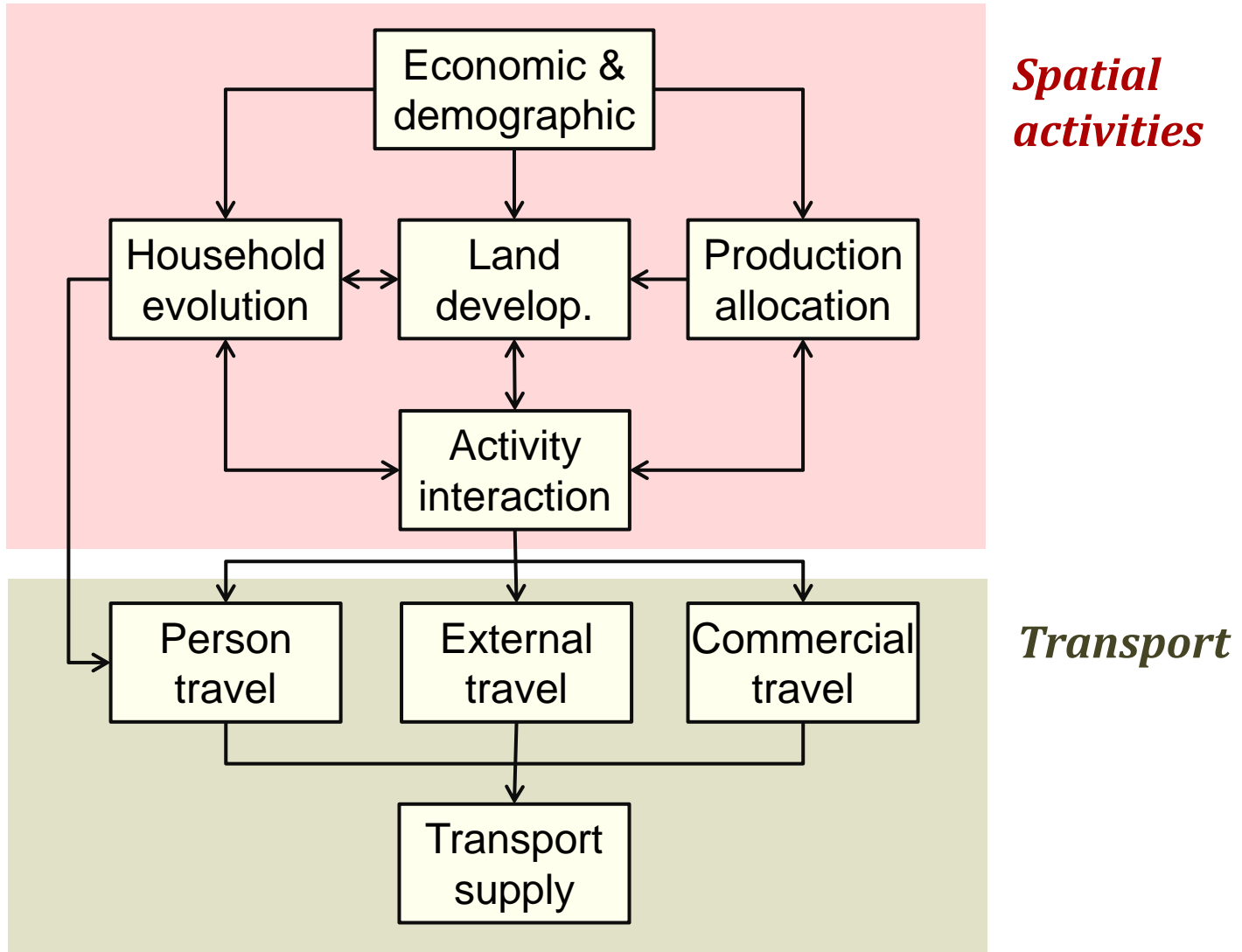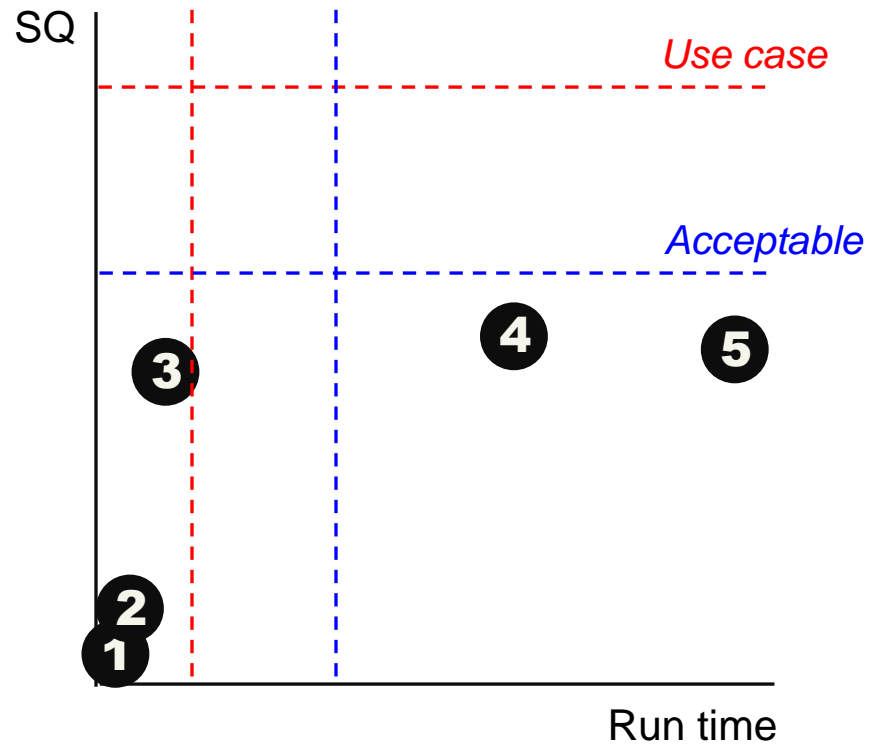

Spatial activities

Transport

TLUMIP: the agile view

Required model functionality (implemented as semi-autonomous components)

Models evolve over time and sometimes at different rates

Economic and demographic forecasts	Synthetic population generator	Land use model	Production allocation/activity interaction	Person travel demand model	Freight travel demand model	Transportation supply model	Environmental analysis
Trend model	Adapt TRANSIMS process	Simplified land use allocation	Simplified economic allocation	QRS trip-based model	QRFM trip-based model	Assign trips using EMME2	Simple emissions calculator
Import-export forecasts	Household transitions	Manual overrides	Business transitions	Daily tour pattern generator	Tour generator	Standalone static assignment	GHG per-formance measures
Input-output extensions	Vehicle ownership model	Land re-develop-ment model	Interactions model	Destination choice models	Destination choice models	Parallel static assignment	Interface to MOBILE6 model
Structural econo-metrics	Parallel code version	Original specified LD model	Originally specified PI +AI models	Tour & trip mode choice	Trans-shipment model	Select link analysis capabilities	Interface to MOVES beta model
Originally specified ED model	Originally specified SPG model	Transition to PECAS		Originally specified PT model	Originally specified CT model	Originally specified TS model	Emissions modeling capability

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125 YEARS

ABM example

Objections

- Our agency won't allow it
- Can't see it to management
- "One time shot"
- Doesn't facilitate multi-tasking
- Setting easy targets $\rightarrow$ Never reaching goals
- Client lacks time or interest for intensive involvement
- Don't know how

Bottom line

- Hard to learn new tricks
- Knowledge-driven outcomes
- Saved time and resources
- Interim operational capabilities
- Fully involved client
- Under budget, within schedule

Questions for Erik?