Privacy Engineering

Bridge to the possible

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VP and Chief Privacy Officer
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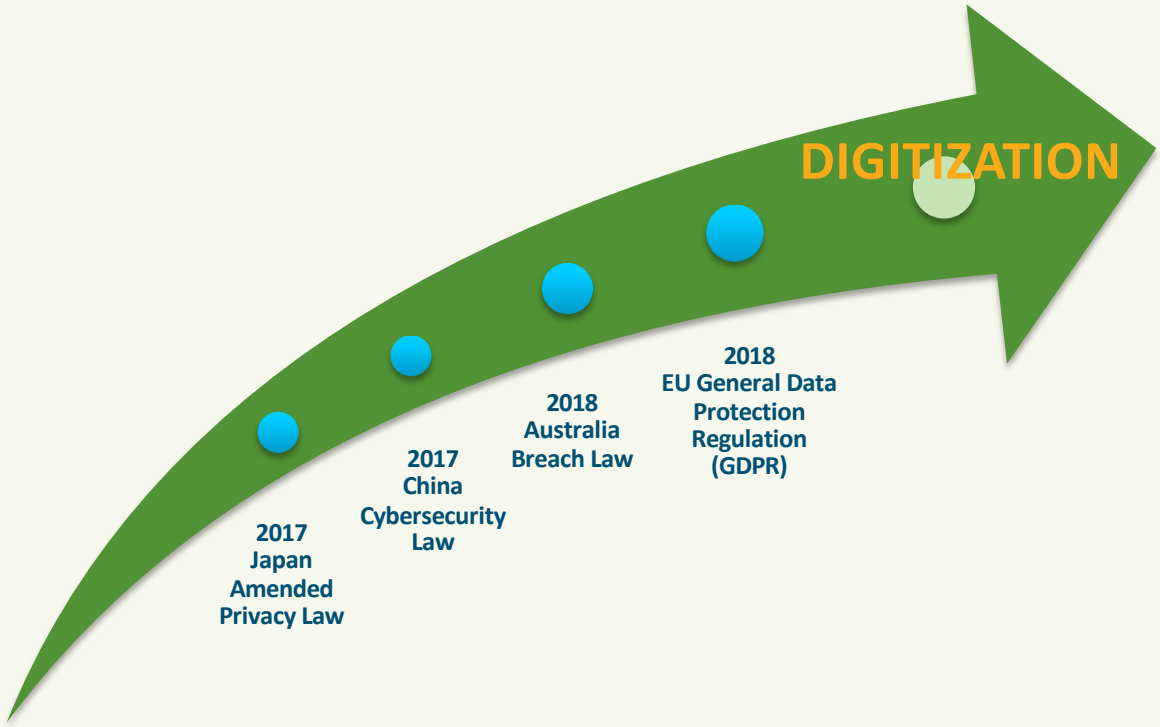
Data privacy is our future

- Data is essential to digital strategies & innovation
- Technology must meet customer requirements
- As business partners, we must protect our customers' data & privacy
- New laws & regulations pose huge potential fines & costs; reputational & brand risk



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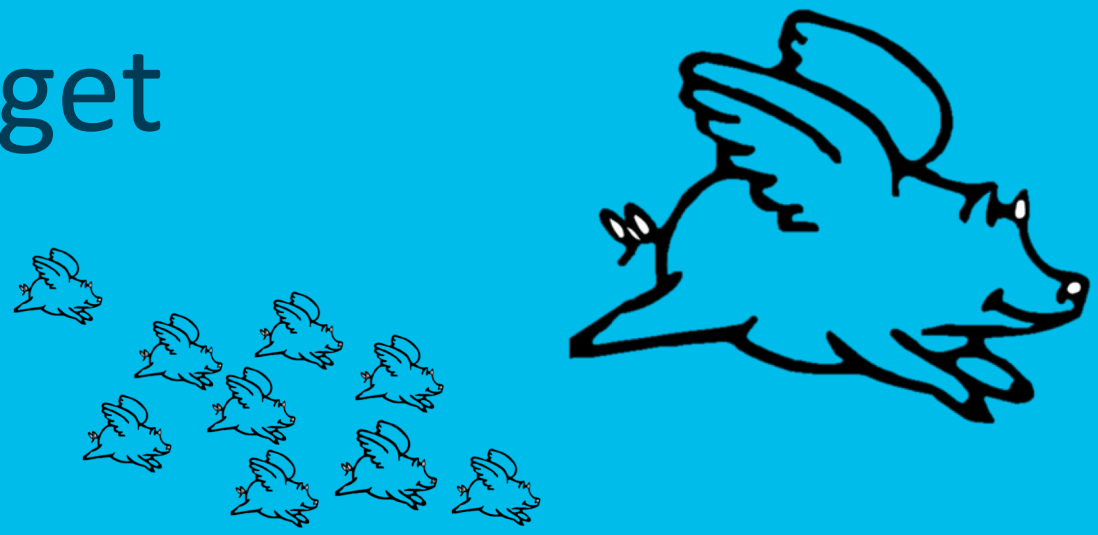
“No matter what market you’re in, no matter what service you provide or product you sell… from right now until the end of time, you’re in the privacy game. Welcome.”

“The Privacy Revolt: The Growing Demand for Privacy-as-a-Service”
Wired magazine

How did I get here?



Value of Data

Enterprise or customer focused

Product or business operation focused

5. **MAXIMIZE VALUE**
- Identify AI/ML/product uses
- Treat data as asset to maximize business intelligence

4. Drive business insights
- Analytics & data science
- Drive actions

3. Democratize the data
- Curate to make data accessible
- Manage processors to policy-based controls

2. Embed controls to protect data
- Security
- Privacy
- Governance

1. Know your data
- Ownership
- Inventory
- Classify

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CURATE YOUR DATA

Curate technology

Don’t

Do

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Curate retail merchandise

Don’t

Do

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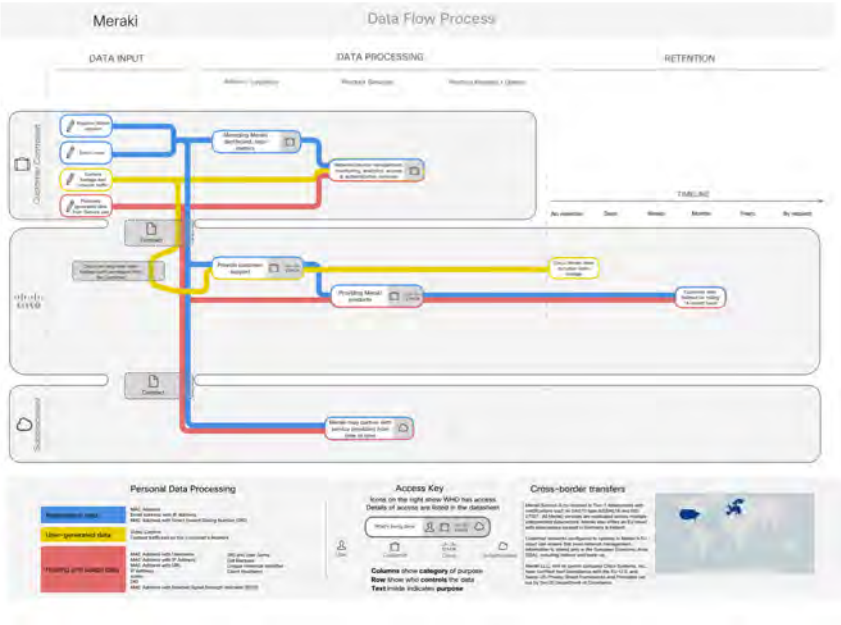
Curate digital life

Don’t



Do

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“Companies must be good data stewards. If you are not, we will not do business with you.”

US media company in Beacon Group research study, 2018

Path to curation: privacy engineering

Discipline

Innovation

Data-centricity

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We are all privacy engineers

A privacy engineer…

- Needs more than just technical skills to **protect** and **extend** the **value** of data
- Draws from artistic **creativity** and expression to **innovate**
- Learns from, **but disregards**, the failures of the past

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Privacy engineering: practitioner process

Start with privacy scoping

What market requirements apply?
What regulations must you meet?
Whose data are you processing? Where is the data?
What corporate rules apply?

Gather all document retention periods established by statute or regulation working with…

- Legal team
- Functional teams
- Industry compliance teams
- Records management team
- 3rd-party providers

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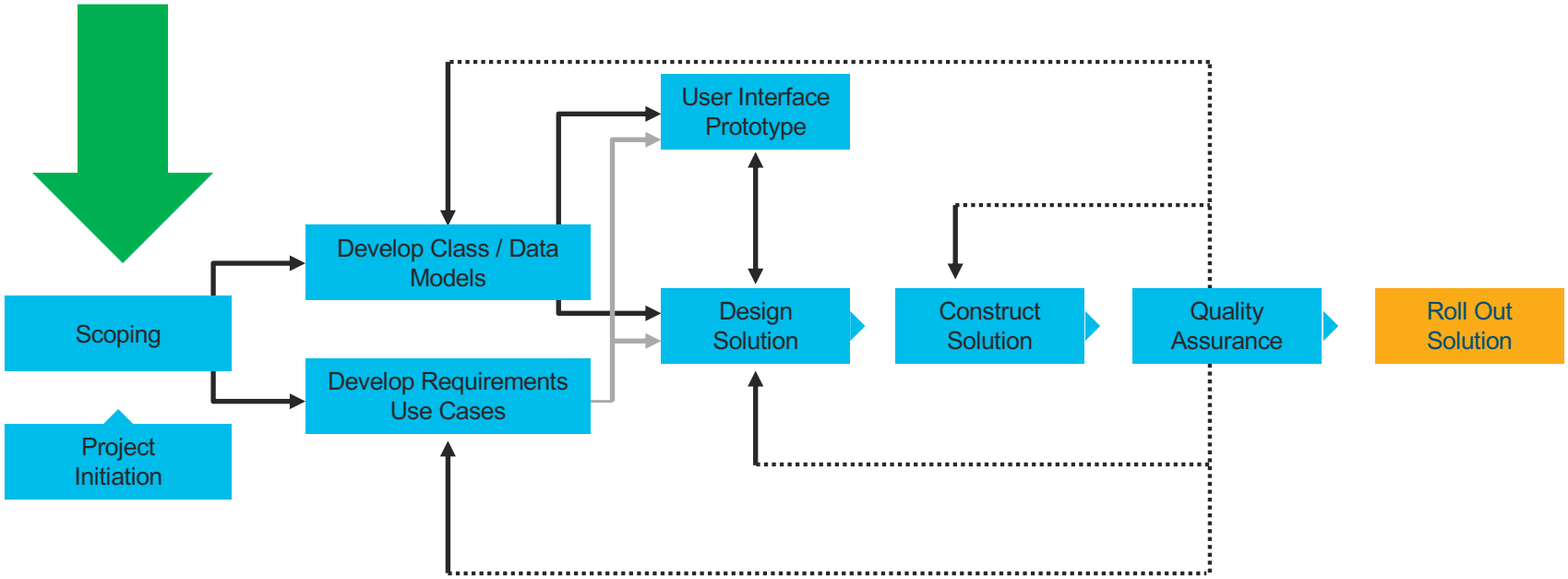
Privacy scoping process



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Scope your environment

Data management, protection and privacy programs, IT & InfoSec

- Where are your employees and customers?
- What applications are you running?
- What data do you use in your processes?
- Where do you process data?

  Collection, use, 3rd-party sharing, analytics

- Whose data are you using?
- Where does data reside?
- Where do your cloud providers securely process data?
- What is your security plan for infrastructure, application, and product development?

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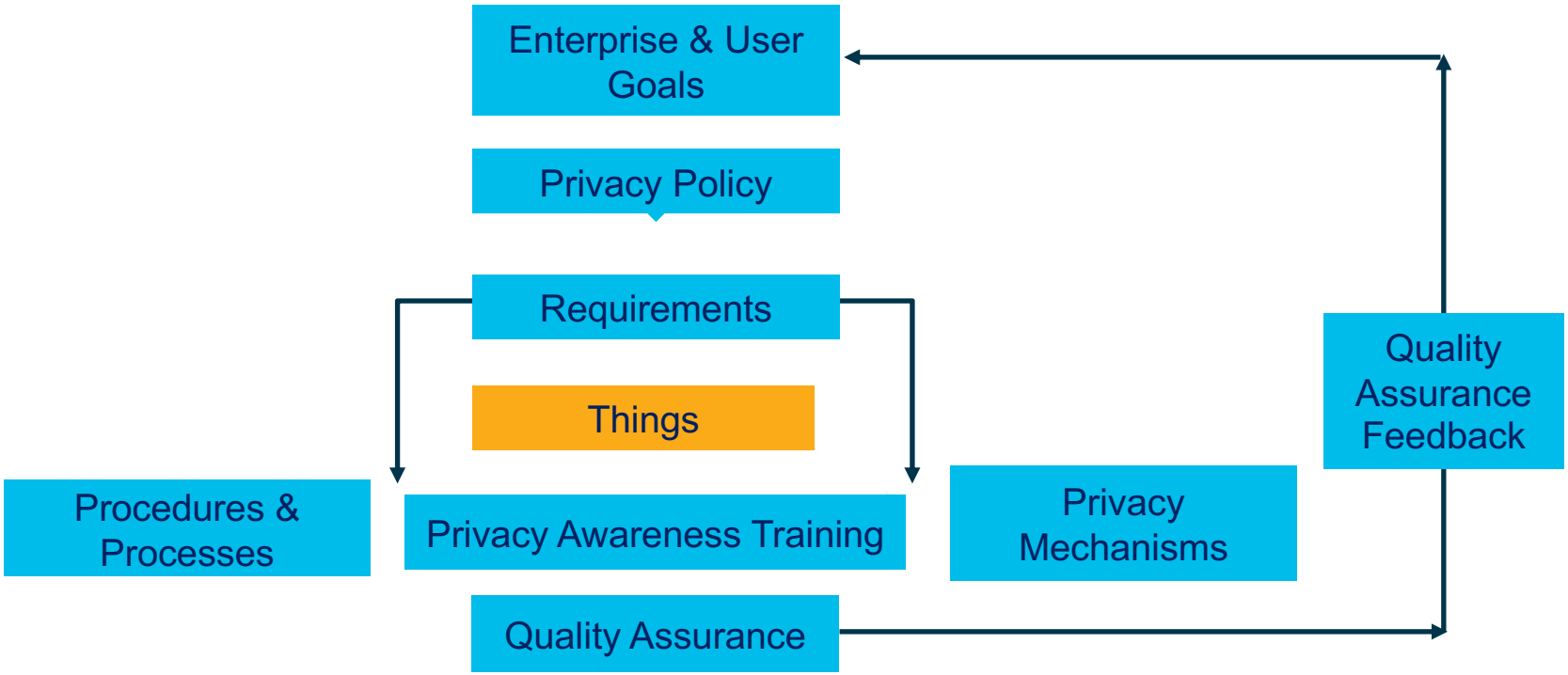
Privacy engineering development process



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Privacy engineering = setting and executing on privacy requirements

- Data
- Purpose
- Collection means
- Notice
- Choice/consent
- Transfer
- Access, correction, deletion
- Security
- **Minimization**
- Proportionality
- Retention
- Third parties
- Accountability

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Requirements derived from enterprise privacy policy

Realistic technology capabilities and limitations

Ethical obligations

Enforceability and compliance

Economic pressure to create value through efficient sharing / relationship building

Usability, access and availability for end users of information systems

Industry standards

Brand identity

Permission marketing / customer relationship management / business intelligence

Local and international legal, jurisdictional and regulatory necessities

Organization / business requirements

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IEEE P7002 Data Privacy Process

- Defines requirements for systems/software engineering process for privacy-oriented considerations regarding products, services, and systems using employee, customer or other external user's personal data.
- Extends across lifecycle from policy through development, quality assurance, and value realization. I
- Includes a use case and data model (including metadata).
- Applies to orgs and projects developing and deploying products, systems, processes, and applications that involve personal information.
- With specific procedures, diagrams, and checklists, users perform conformity assessments on their privacy practices.

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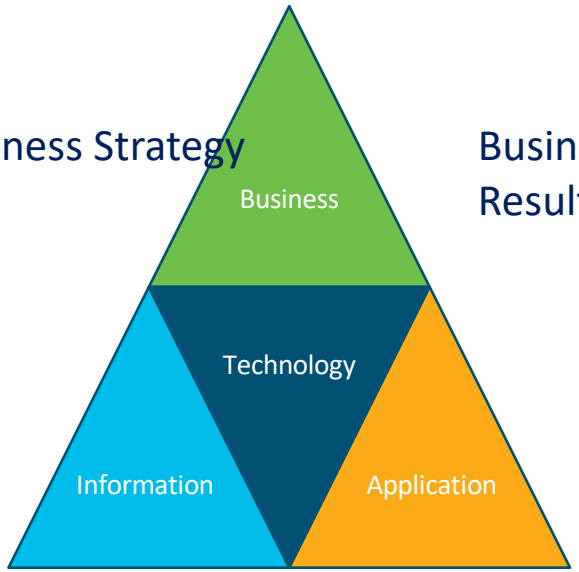
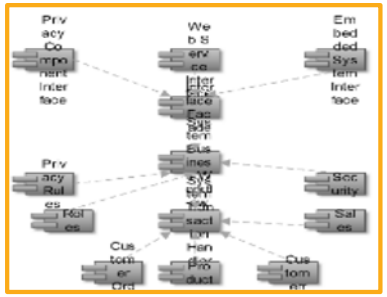
It’s all connected

Business Strategy

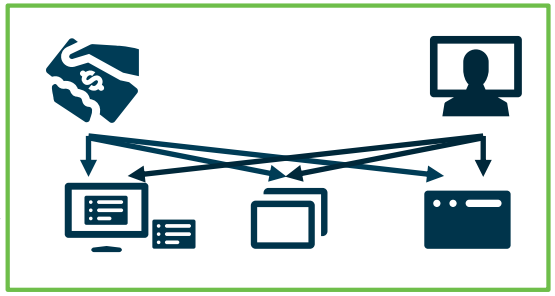
Business Results



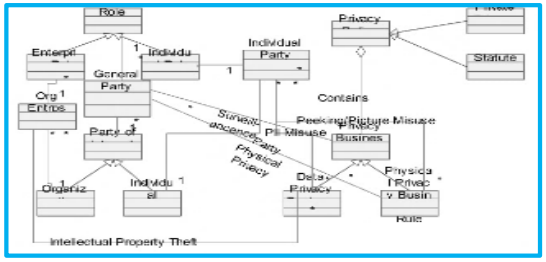
Enterprise Architecture



Application Architecture



User Interface Architecture



Information Architecture

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Privacy Requirement Workshops

Five components:

1. Understand context
2. Review use cases and data
3. Understand the user interface and user experience
4. Review context, use cases, data, UI and UX with a privacy filter
5. Review requirements you've identified
6. Next steps

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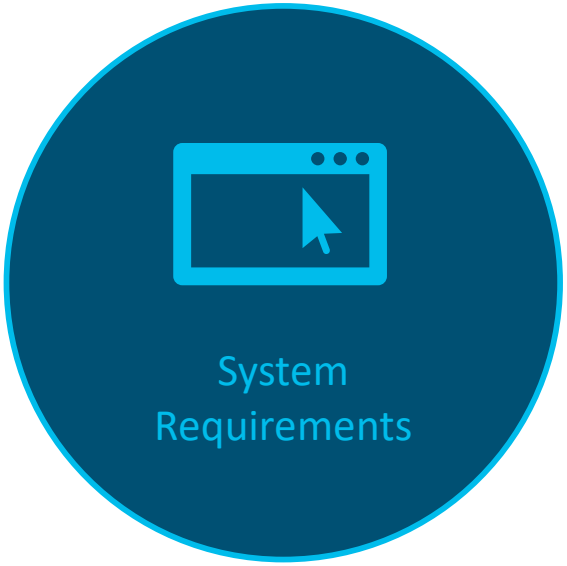
Questions help you understand privacy as part of…



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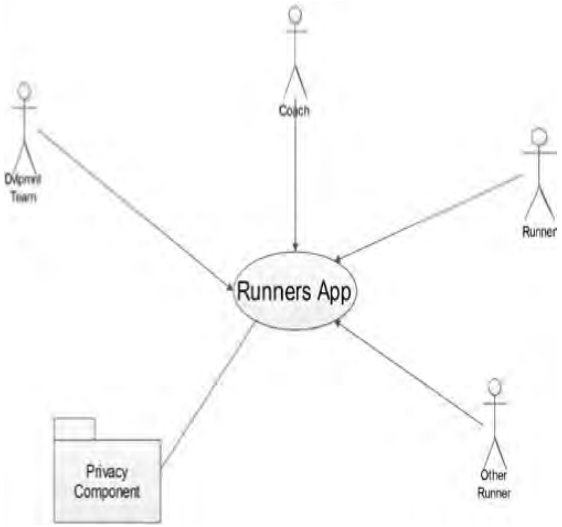
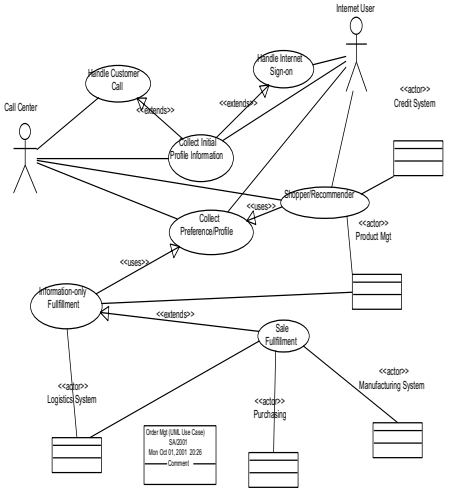
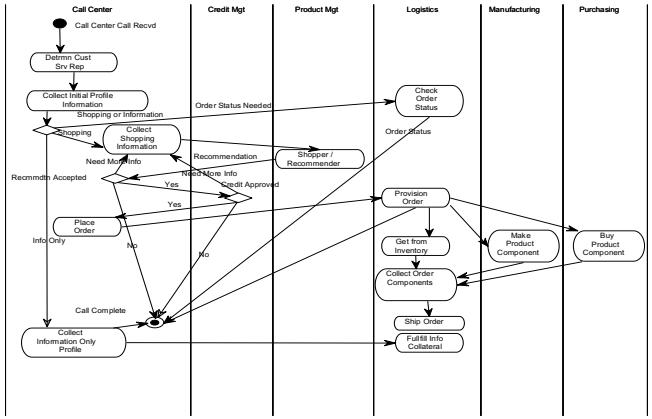
Based on context and process







If context diagrams and use cases/activity diagrams are not available, we build them in the workshop…

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Distill privacy requirements based on…

- Scope of enterprise
- Business drivers
- Mission statement
- Context diagram
- UI and UX design
- Action locations
- Triggering events
- Information flows
- Business processes
- Other/serendipity

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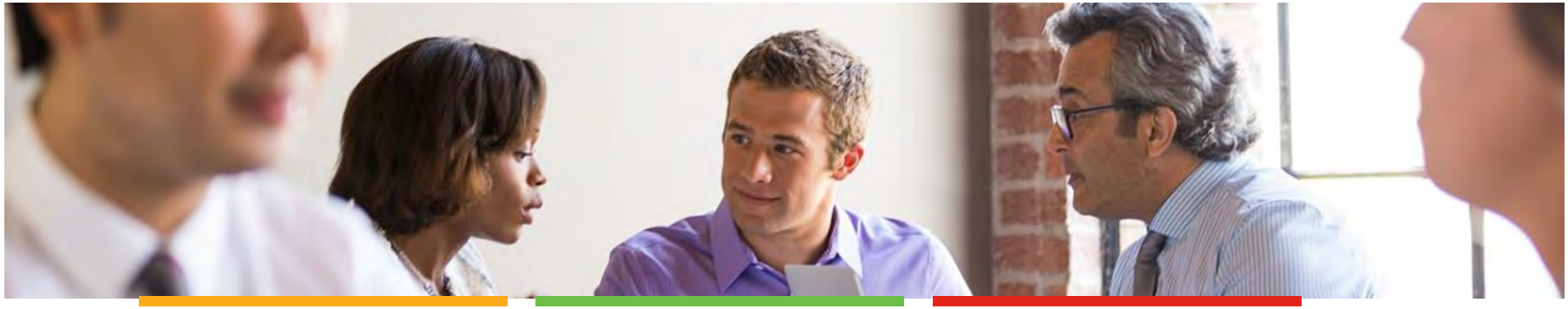
Context and use case diagrams

Context diagrams



Actors

- Participant Actor
  - Ultimate customer
  - In support of ultimate customer
  - Where located?
- System interface
  - What system?
  - Where located?

Information/control flows

- What information/material/ control does user/system supply us?
- What information/material/ control do we supply to user/system?

What event triggers the flow?

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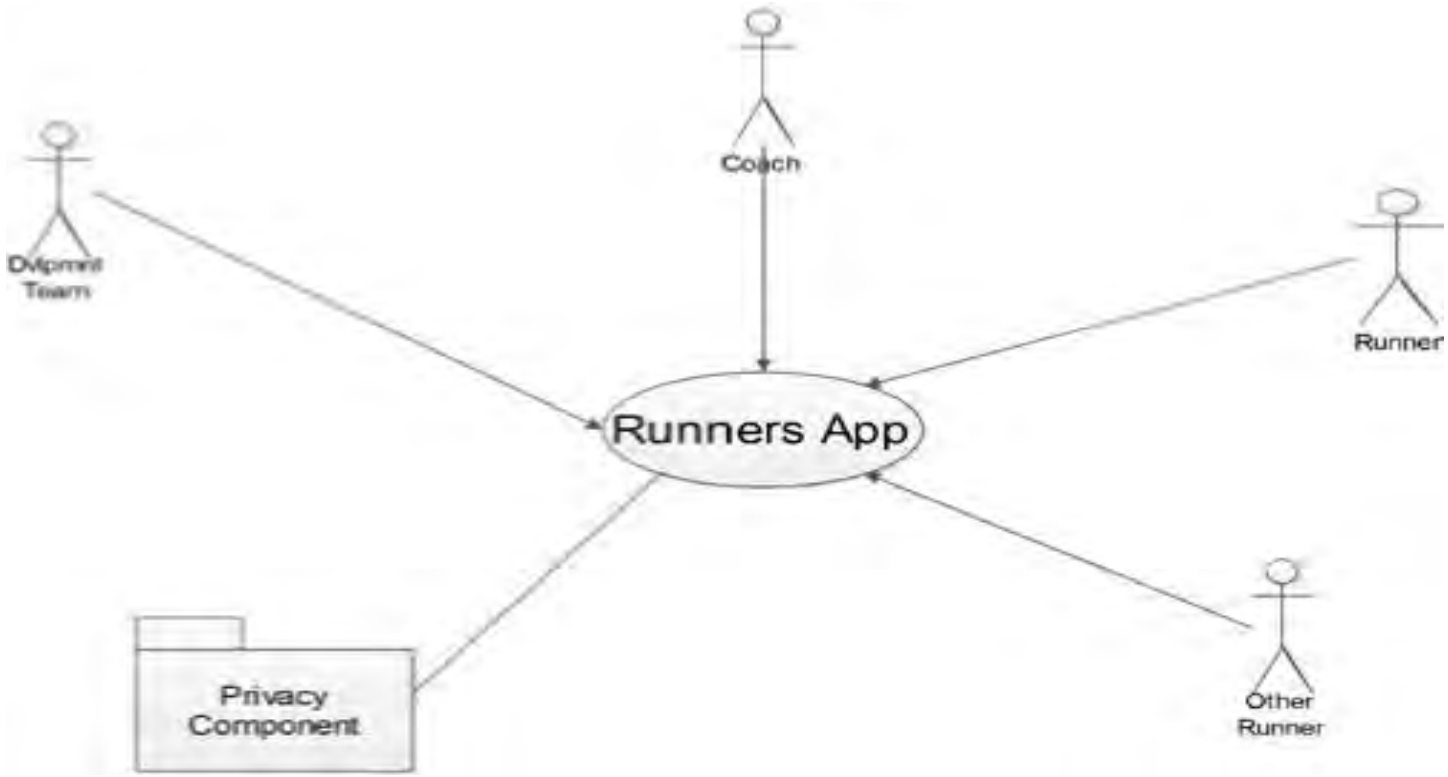
Use stick figures



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Use cases help you gather requirements

- A **use case** is a complete course of events initiated by an actor
  - **Actors** are people, functional roles, or interfacing systems that interact with the enterprise.
  - Develop one or more use cases for each actor.
- Use cases allow business people to **define requirements in business terms** (business people can write use cases).
- Use cases specify interactions between the actor and business processes, automated or not.
  - Use them to begin to understand system interfaces.

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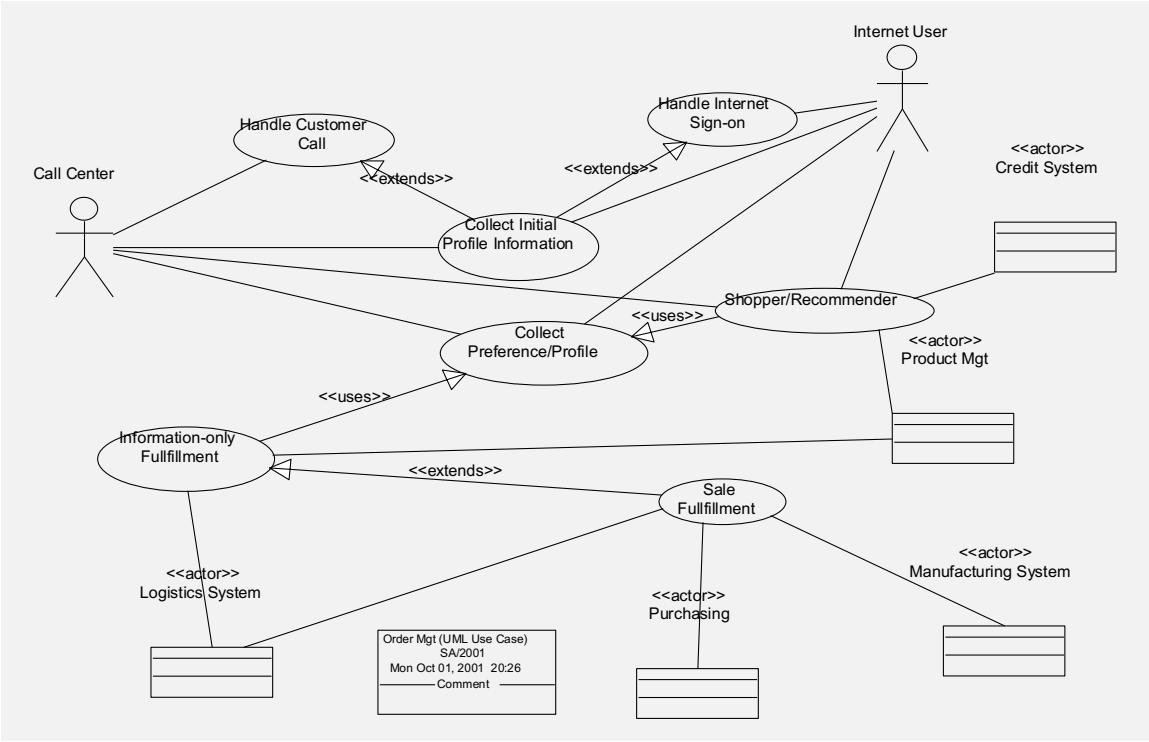
Again, stick figures are fine…



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Workshop results

Initial list of privacy requirements (and risks) to consider & solve for during development

It's a start, *not* an end

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If you can imagine it, you can build the bridge to get you there

For more information

Cisco Trust and Transparency Center

trust.cisco.com

Podcast: www.cisco.com/go/riders

The Privacy Engineer's Manifesto
free at apress.com

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The bridge to possible