

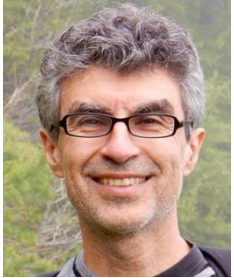


Redesigning Companies for AI

Michael Baeriswyl, PhD
Data, Analytics & Artificial Intelligence
Executive Vice President
Swisscom



Breakthroughs in AI



Yoshua Bengio
University of
Montreal

«We had a series of important [...] breakthroughs with **deep learning**. [...] **speech recognition** came around 2010, and then **computer vision** around 2012. [...] In 2014 and 2015, we had breakthroughs in **machine translation** [...].»



Geoffrey Hinton
University of
Toronto / Google

«Today, [AI] has already done great things, [...] it can't be all just hype. It's how your cell phone **recognizes speech**, it's how a computer can **recognize** things in **photos**, and it's how Google does **machine translation**.»



Probe in StarCraft 2:
LiquidTLO vs.
AlphaStar

«Enemy ahead. Taking fire. **Kaboom!**»



Companies adopting AI

**Microsoft CEO Satya Nadella
on the extraordinary
potential of AI**

Forbes, 06/04/18

**ABB on the hunt for
acquisitions in artificial
intelligence**

Reuters, 03/29/18

**Amazon Says It Has Over
10,000 Employees Working on
Alexa, Echo**

WSJ, 11/13/18

**Novartis CEO who wanted to
bring tech into pharma now
explains why it's so hard**

Bloomberg, 01/16/19



AI for Swisscom



**Network &
Infrastructure**



**Consumer
Business**



**Enterprise
Business**









We were tasked to align AI activities across units

**Consumer
Business**

**Enterprise
Business**

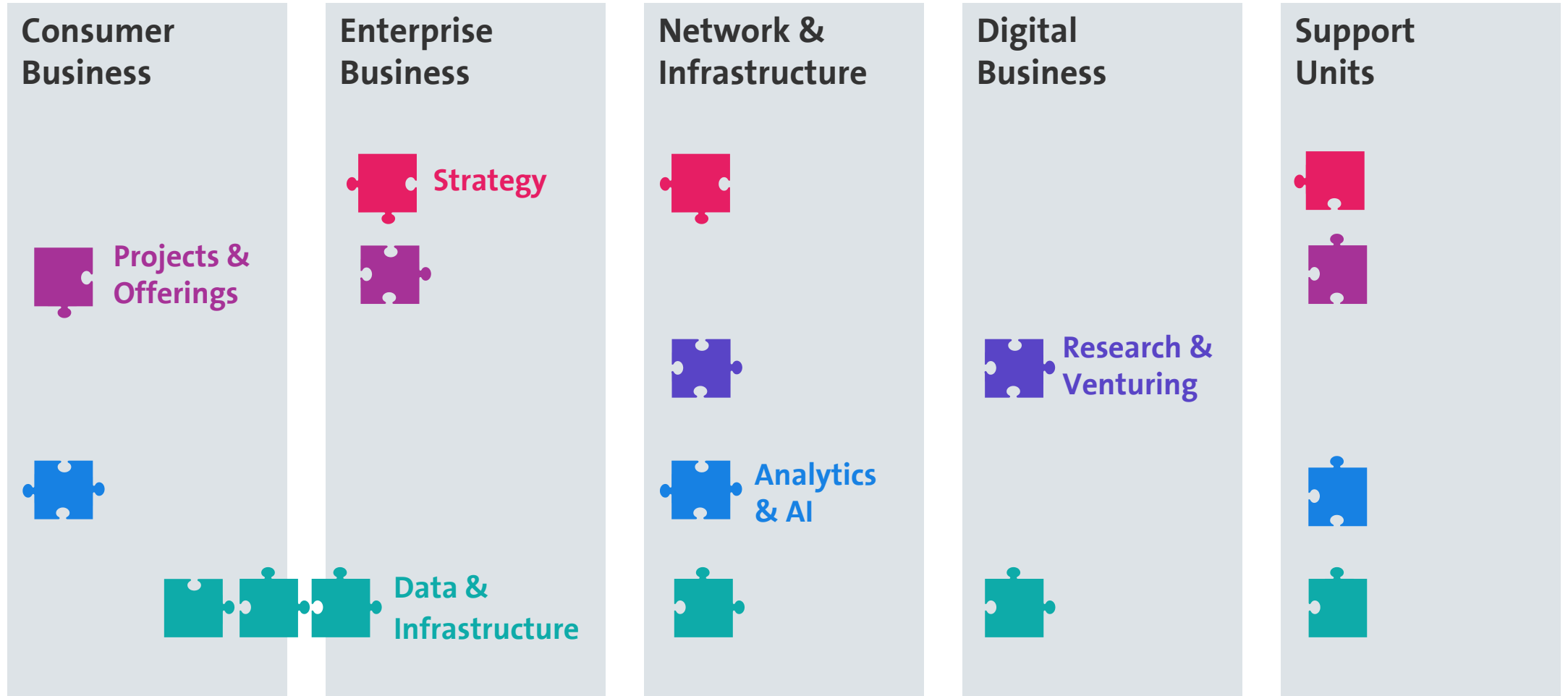
**Network &
Infrastructure**

**Digital
Business**

**Support
Units**

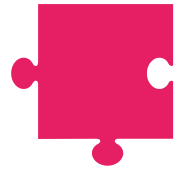


AI activities in different units





Ownership of entire AI value creation



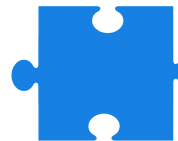
Strategy



Offerings & Projects



Research & Venturing



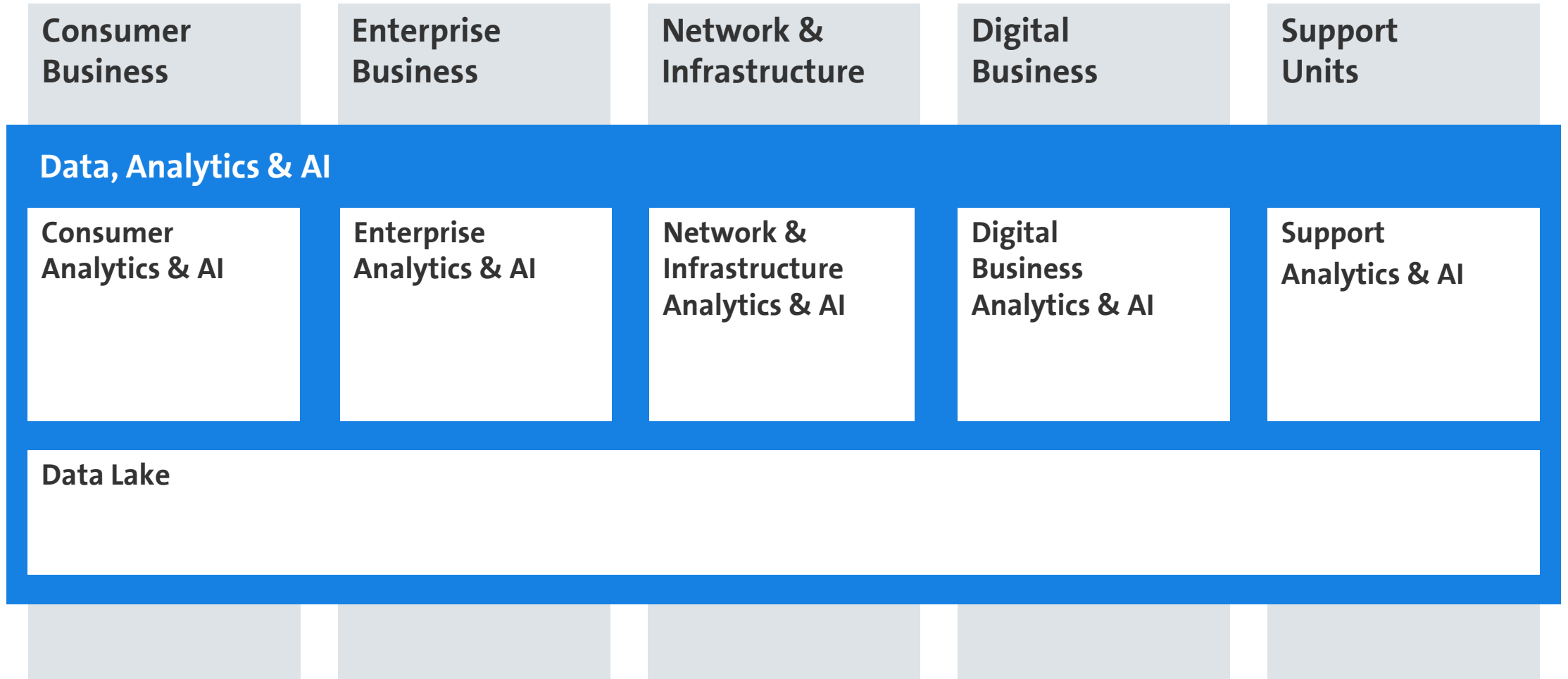
Applied Analytics & AI



Infrastructure & Data



Horizontal organization aligning activities of units



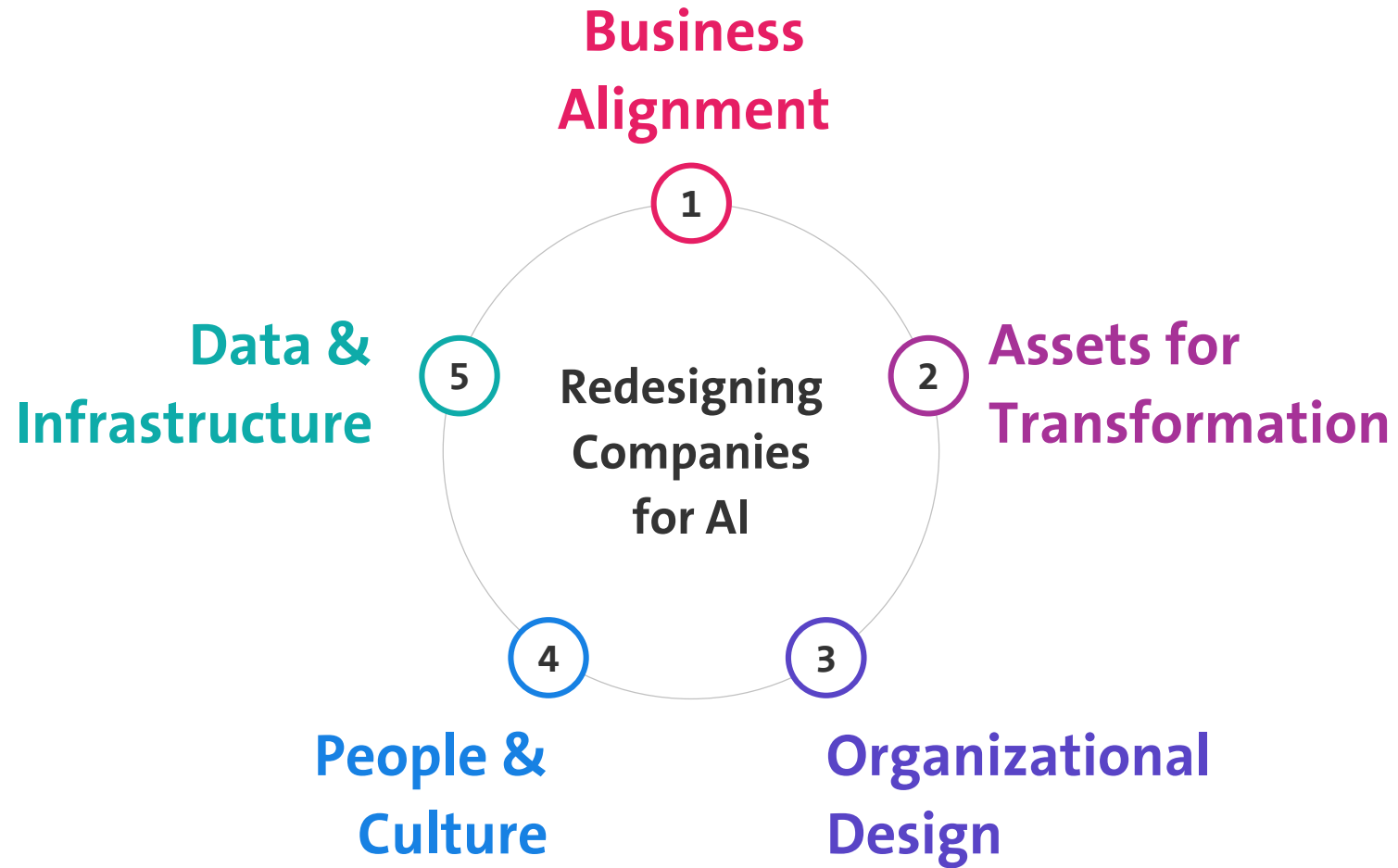


Will you be redesigning companies for AI?





Steps for redesigning companies for AI





Business Alignment



Identify important business problems

- Vision
- Customers
- Strategy
- Cost vs. revenue
- Low hanging fruits
- Risk assessment



Find examples of successful research or companies

- Inspiration
- Scope
- Education
- Competition
- Startups



Define AI activities and roadmap

- Business case
- Roadmap
- Metrics
- Management support & commitment



AI for Network & Infrastructure









AI for Network & Infrastructure

Roll-out & Improvement

Joint embedding of network parameters and usage data for problem importance ranking

Anomaly Detection

Time series analyses and predictive models with Kalman Filters

Predictive Maintenance

Adaptive hardware cooling and lightning impact prediction with multiple linear regression





AI for Market Offerings

Voice Search for Swisscom TV

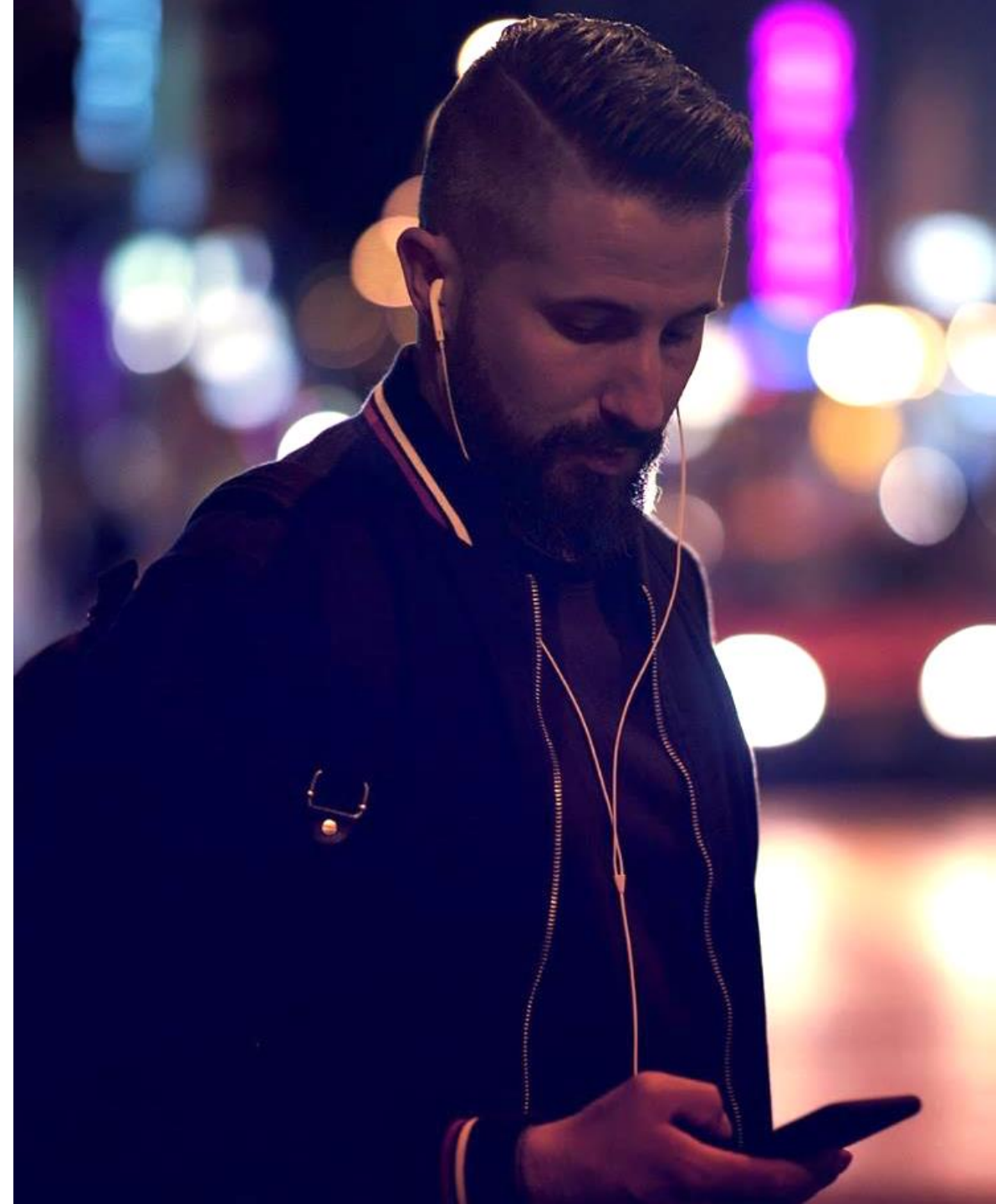
Dual encoders for TV retrieval bots based on German ASR input

Content Recommendation for Swisscom TV

Hybrid recommenders leveraging user and broadcast embedding spaces using variational autoencoders

Machine Translation

One transformer to rule them all -
Or maybe a few transformers to rule them all





AI for Customer Interaction & Support

Customer Interaction Triage

Massively multi-class triage with ensembles of CNN-RNN stacks with attention

Conversational Hotline

Voice-based interaction in Swiss German using hybrid ASR models and classifiers based on sentence embeddings

Agent Advisory

Agent Advisory models based on semantic similarity measured with CNNs and sent2vec



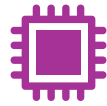


Assets for Transformation



Find & recruit experts

- AI experts
- Agile leaders
- Hire experts with network
- Roles for development & operations
- Conferences & events



Find relevant data & infrastructure

- Architecture
- Catalogue
- Unique data
- Sourcing
- Storage
- Processing
- Access



Find existing AI projects & partners

- POCs
- Showcases
- Needs of customer & units
- Vendors
- Research
- Venturing
- Startups



Organizational Design



Choose adequate organizational design

- Executive power & support
- Horizontal organization
- Ownership of entire value creation
- Centralized budget
- Mission statement
- Metrics



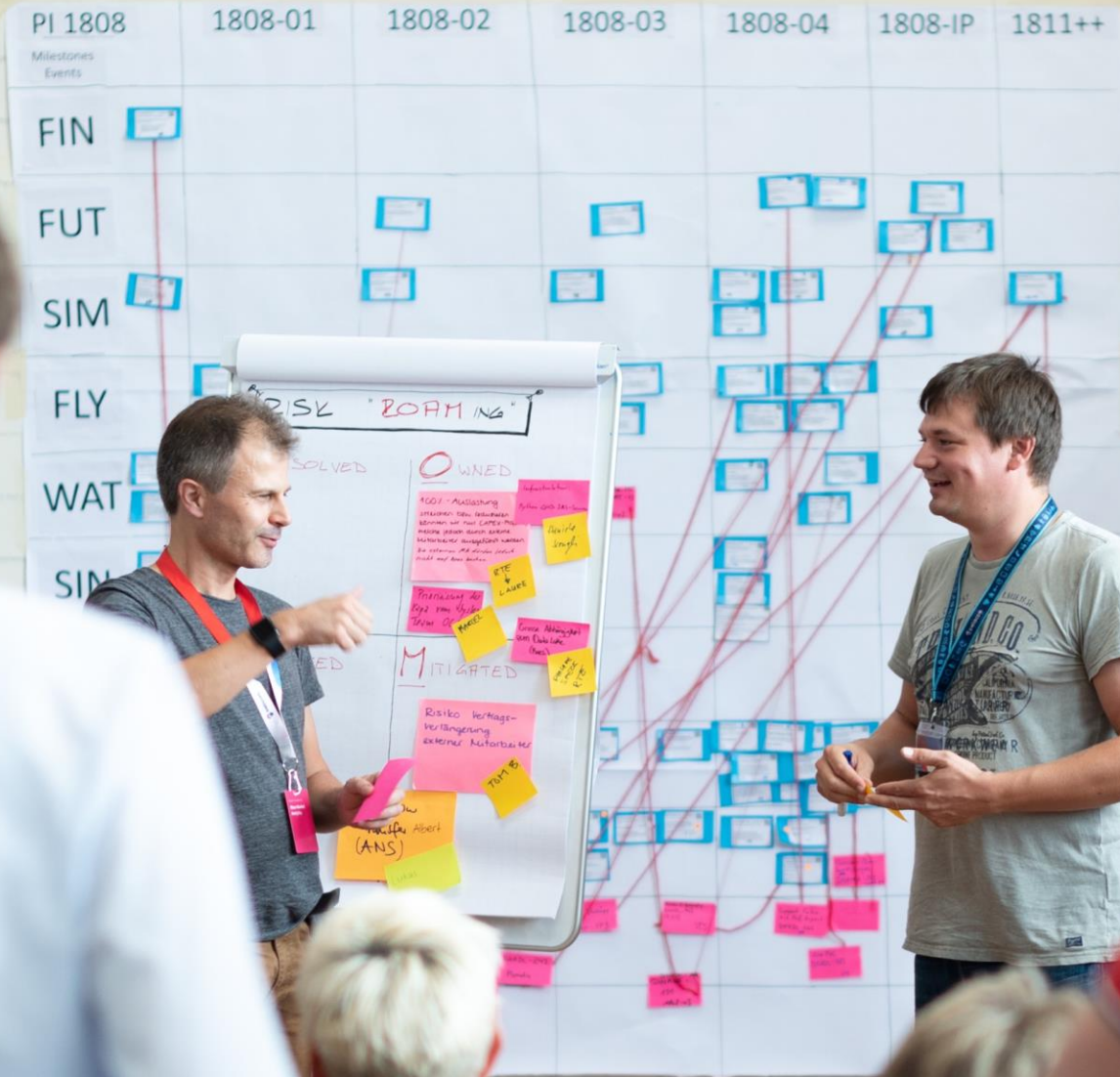
Adopt agile ways of working

- Sync activities
- Increase transparency
- Unified backlog
- Common rituals
- Shared documentation
- Manage uncertainty & risk



Define roles & responsibilities

- Agile roles
- Accountability
- Dependency management
- Standardized processes
- Stakeholder management
- Line vs. virtual organization



1 Team und program
 2 notwendig, planung
 3 notwendig, planung
 4 notwendig, planung
 5 notwendig, planung
 6 notwendig, planung
 7 notwendig, planung
 8 notwendig, planung
 9 notwendig, planung
 10 notwendig, planung





The Planning Meeting Retrospective

1. What went well
2. What didn't
3. What we can do better next time





People & Culture



Empower agile leadership

- New career paths
- Fun
- Purpose
- Open feedback
- No silos
- Flat hierarchy
- Intrapreneurship



Education

- Status quo
- Identify needs & problems
- Collaboration with universities
- Business & product mindset
- Roadshow



Research

- Research lab on campus
- Master & PhD students
- Framework agreement
- Mixed teams
- Publications
- Recruiting



Digital Lab's

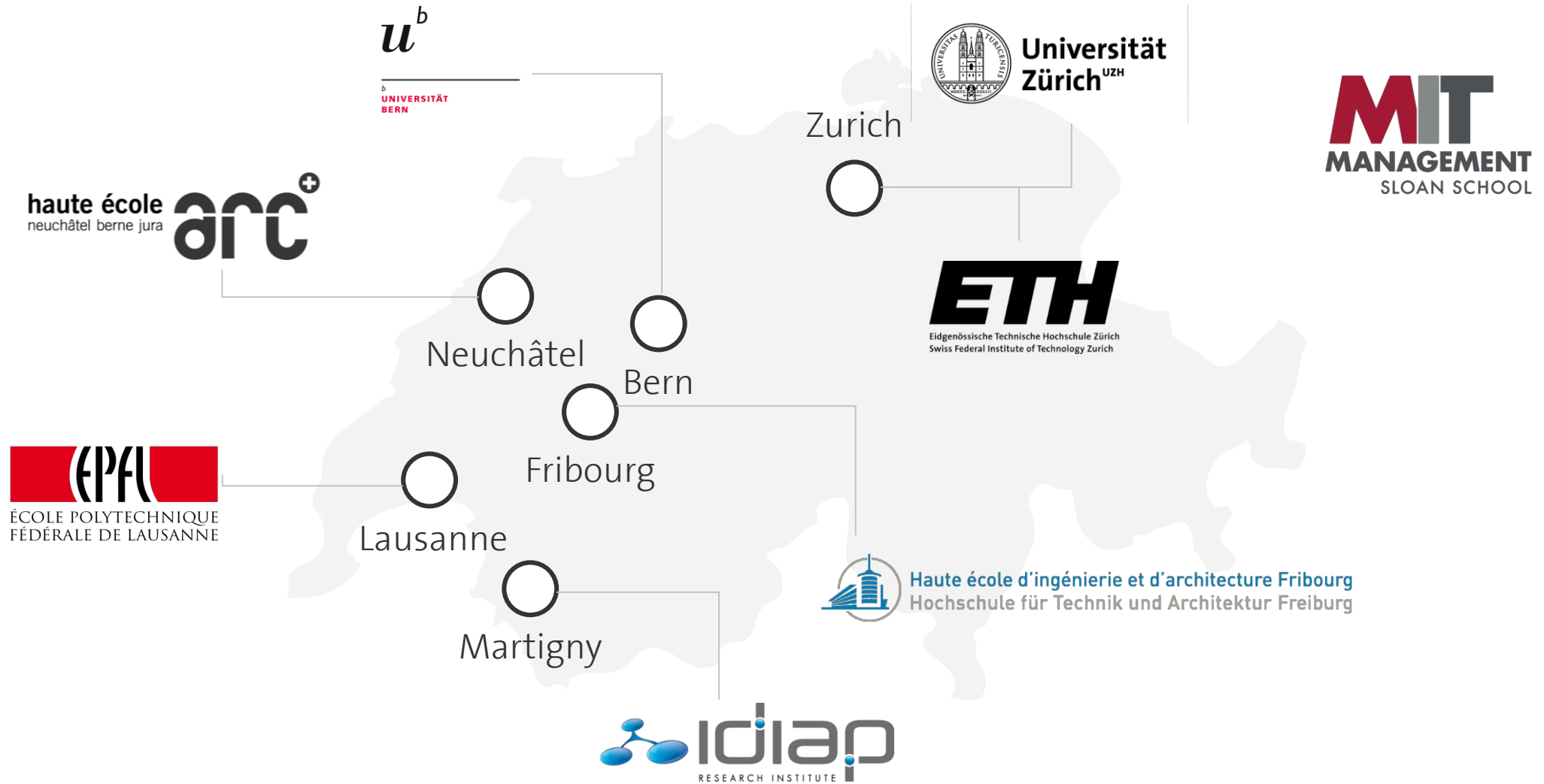
swisscom
digital lab

LAB'S 2018
Xmas Parties + Global Summit
Monday, December 17th
5PM - 6:30PM
Celebrate success
before we leave!

IT&F
Professional Performance & Loss
Monday, January 8th / 10AM - 12PM
Focusing on the 100,000+ users in France!



Research Collaborations





Curate data & master infrastructure



Curate data assets

- Data lake
- Architectural guidelines
- Consulting
- Data quality
- Self services
- Company-wide processes



Data governance & security

- Separate governance
- Ethics board
- Reviews
- External audits
- Certification



Hybrid Infrastructure

- On-premise infrastructure
- AI services
- Leverage cloud offerings
- Harmonize tooling
- Self service
- Access rights & profiles



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Thank you!

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