

Venture, AI, and Search

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the morning paper

an interesting/influential/important paper from the world of CS every weekday morning, as selected by Adrian Colyer

Home

A Year in Papers

DECEMBER 14, 2015

We've reached the end of term again, and I'm taking a break from writing up papers over the holidays – a chance to replenish my backlog and start planning for 2016 too! I want to see what I can do to improve the readability of the site as well. The Morning Paper will resume on the 4th January.

In a moment I'll share with you the **top 10 most read** and **most tweeted** papers, plus **some of my own picks**. But first a quick look back over the year. Through the course of 2015 I've posted **206** paper write-ups on The Morning Paper plus a few original pieces and other miscellaneous posts. That means I'm now at over 300 paper reviews in total since #themorningpaper began. It's amazing how a little every day adds up over time!

I'd like to say a huge thank-you to everyone who's been following along, I love all the interaction that the papers lead to. And if you're not yet subscribed to The Morning Paper and you're looking for a *New Years Resolution*, **signing up to the mailing list will get you**

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SEARCH

ARCHIVES

Select Month ▼

MOST READ IN THE LAST FEW DAYS

> [ARIES: A Transaction Recovery Method Supporting Fine-Granularity Locking](#)

blog.acolyer.org

500+

- Foundations
- Frontiers

30+
years of investing

300+
investments

125+
mergers or sales

100+
public offerings



Investing Around the Globe



* The map above only shows a small sampling of current and past portfolio companies

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GENRE

Drama
Action
Comedy
Crime
Thriller
Documentary
Family
Foreign
Adventure

119 MOVIES



Found in 2ms

ACTORS



Alexia Fast



Vin Diesel



Paul Walker

Try to search for

1 Fast and furious

2 Jennifer Lawrence

3 Need help?

Fight fraud with AI

69,855,269

INSURANCE CLAIMS ANALYZED TO DATE

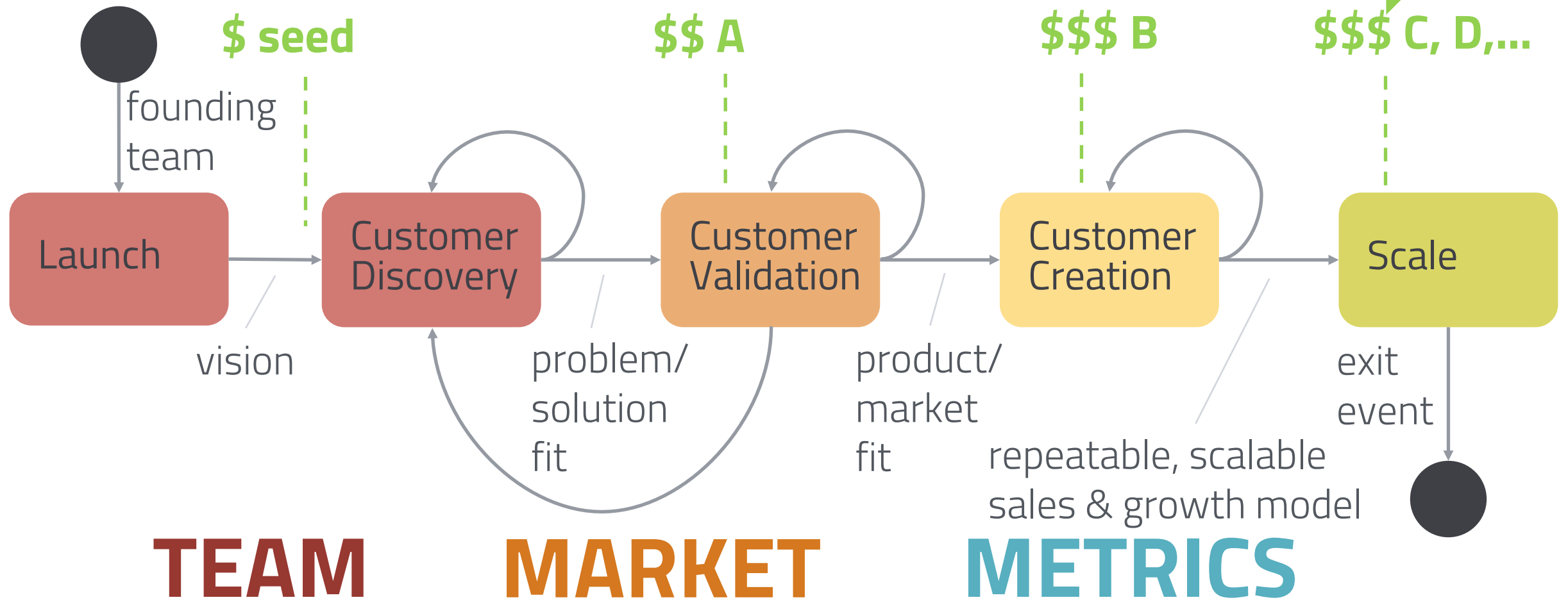
Agenda

- Investment and the startup lifecycle
- What business are you in?
- From research to reward
- Defensibility
- Can't we just get acquired for talent?
- Let's talk about Rocket.ai...
- Advice for founders



Decreasing risk / increasing confidence

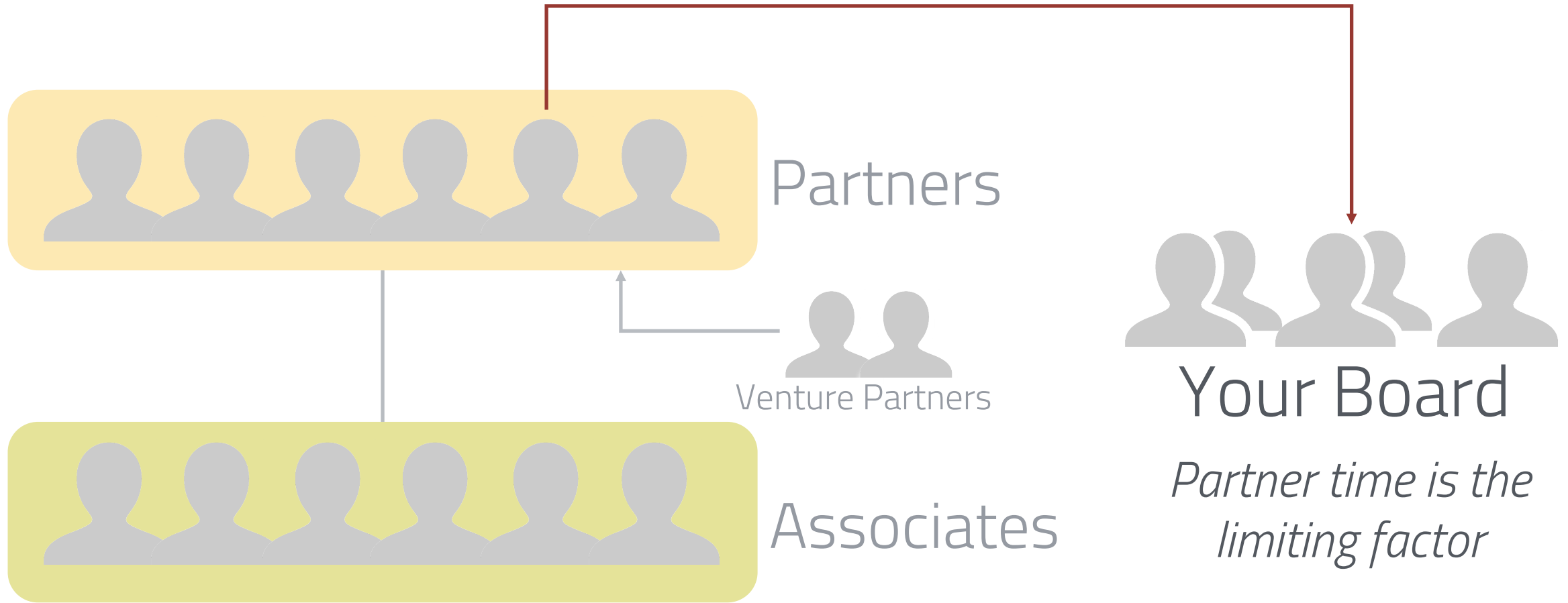
Increasing valuation



A 7-8 year journey



You're not competing for money...!

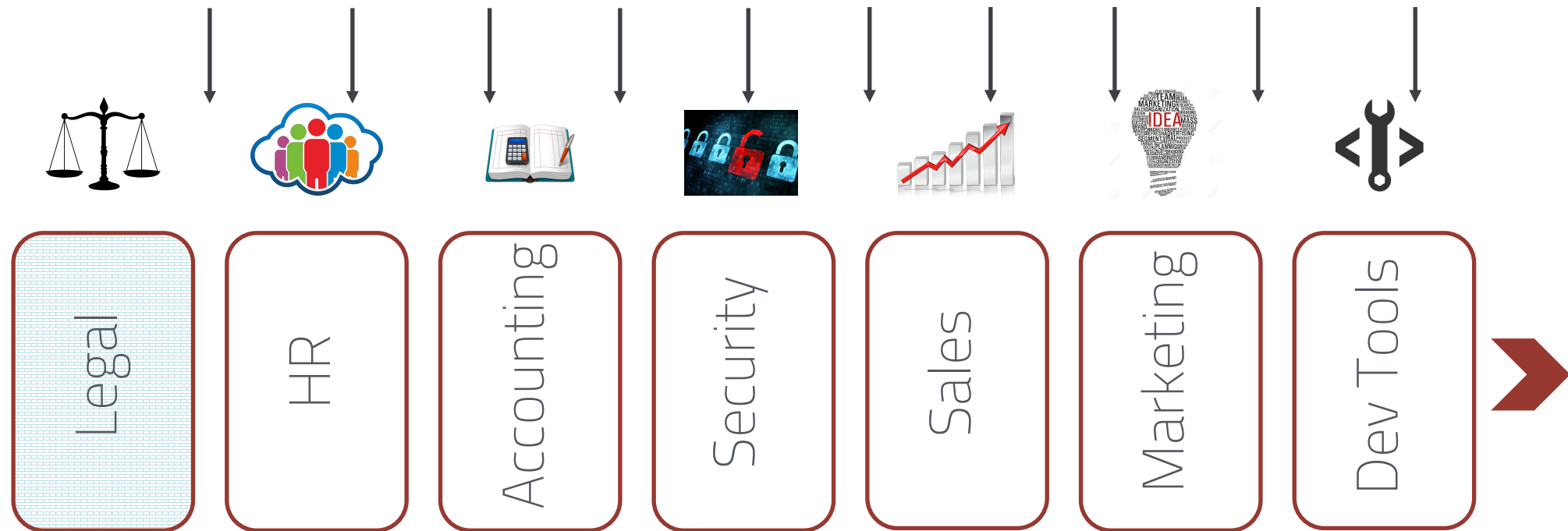


Inside a VC firm

What business are you in?

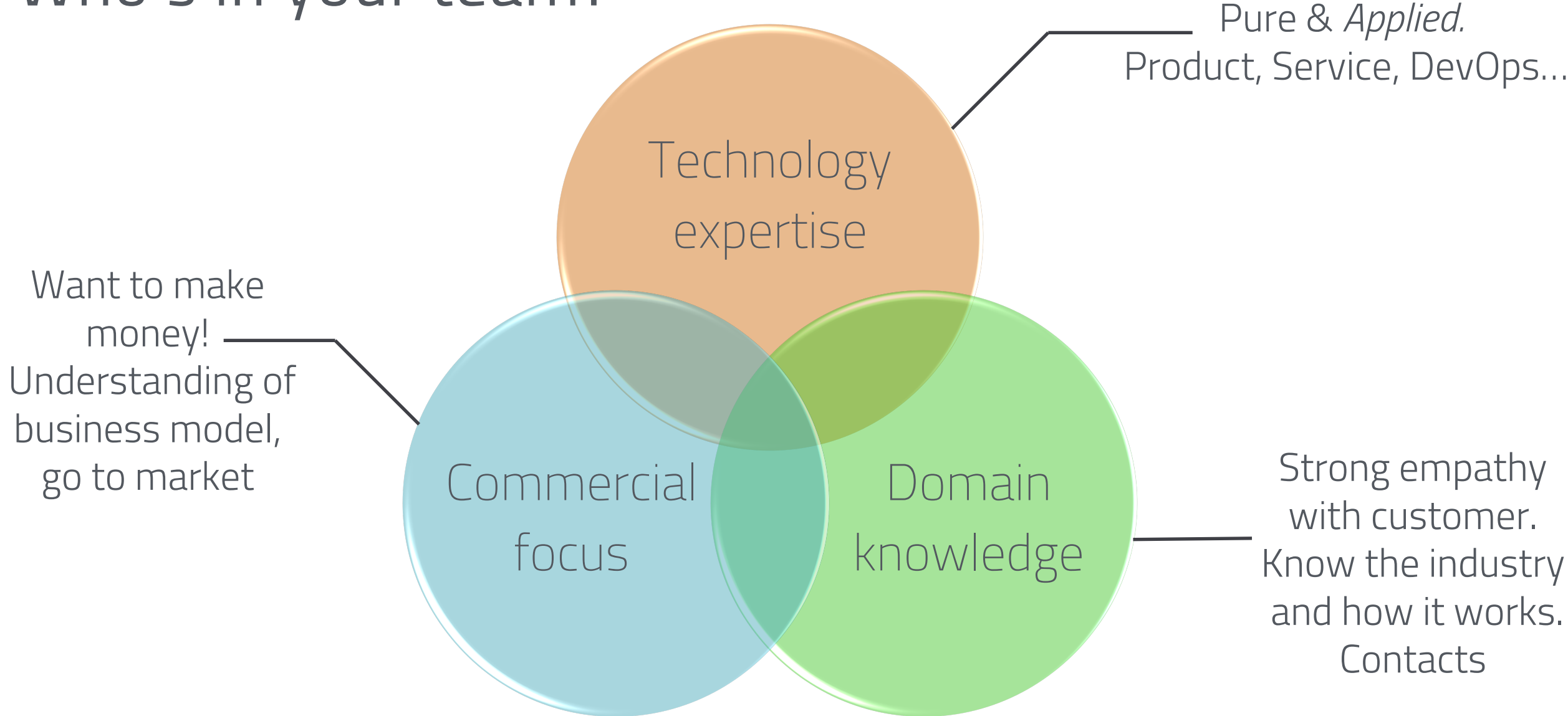
Foundational AI Technologies

All enterprise departments & industry verticals experiencing change



Next generation of vertical software will be AI-enabled

Who's in your team?



How do you get a #1 hit single?



UPGRADE

HELP

DOWNLOAD

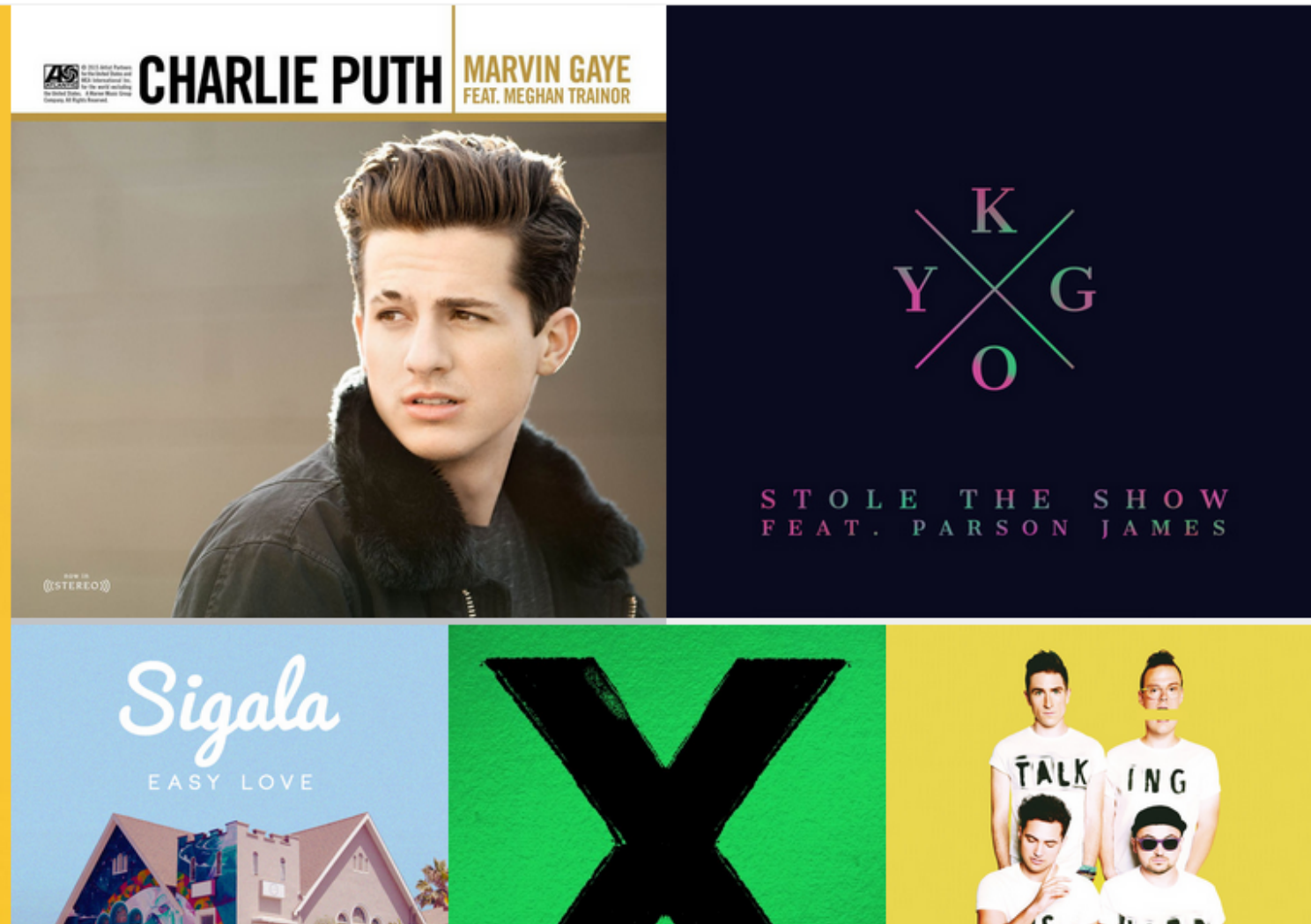


Music for
everyone.

All the music you'll ever need is right here. Your favorite artists, albums and readymade playlists for every moment.

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GO TO WEB PLAYER



A business machine

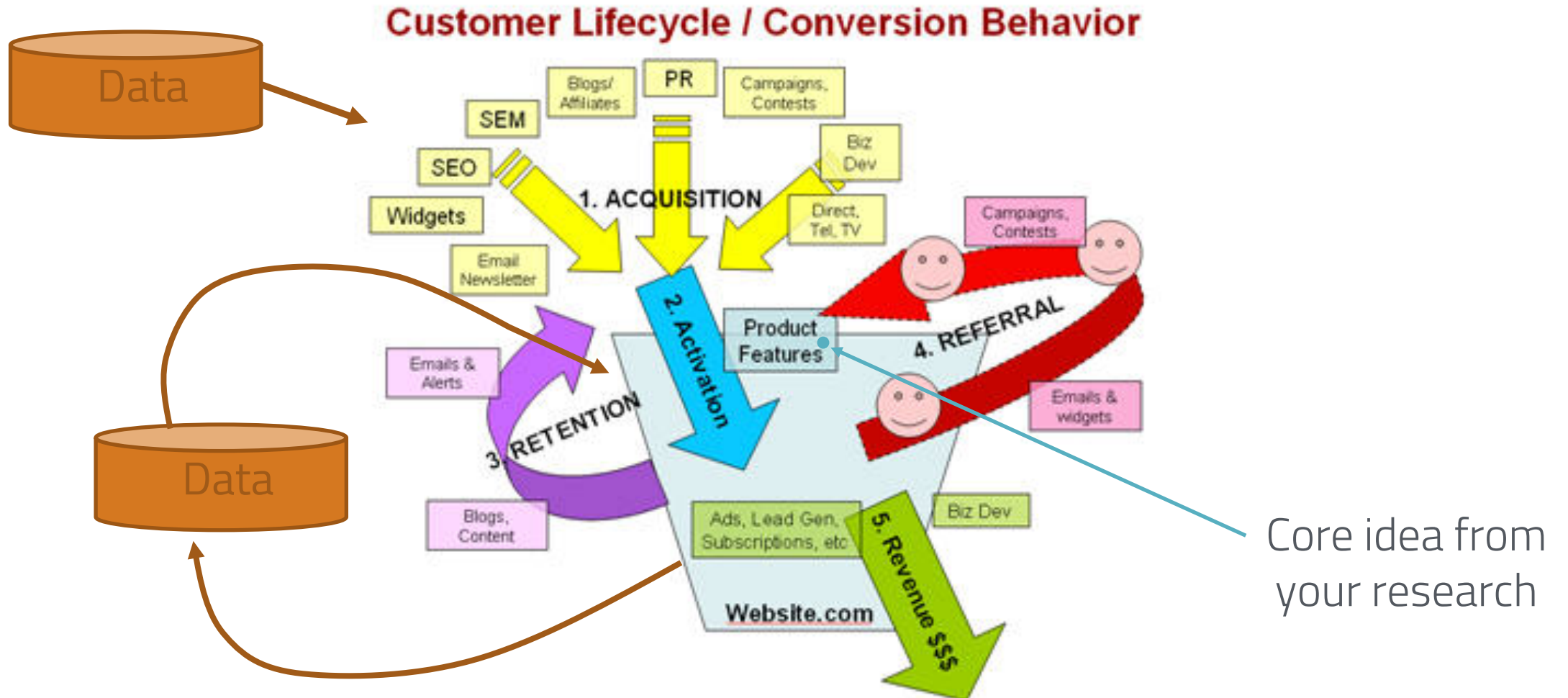


Image: <http://500hats.typepad.com/500blogs/2007/09/startup-metrics.html>

Dave McClure's Metrics for Pirates

Going the distance

(aka defensibility)

(aka castles and moats)

- Proprietary data?
- Proprietary algos?
- Rate of innovation??
- Virtuous cycles
- User experience
- Brand
- Ecosystem
- Pricing model???
- ...?



What gives you the right?

**Right to be
forgotten**

Explicit consent

Specific purpose

Right to data

GDPR

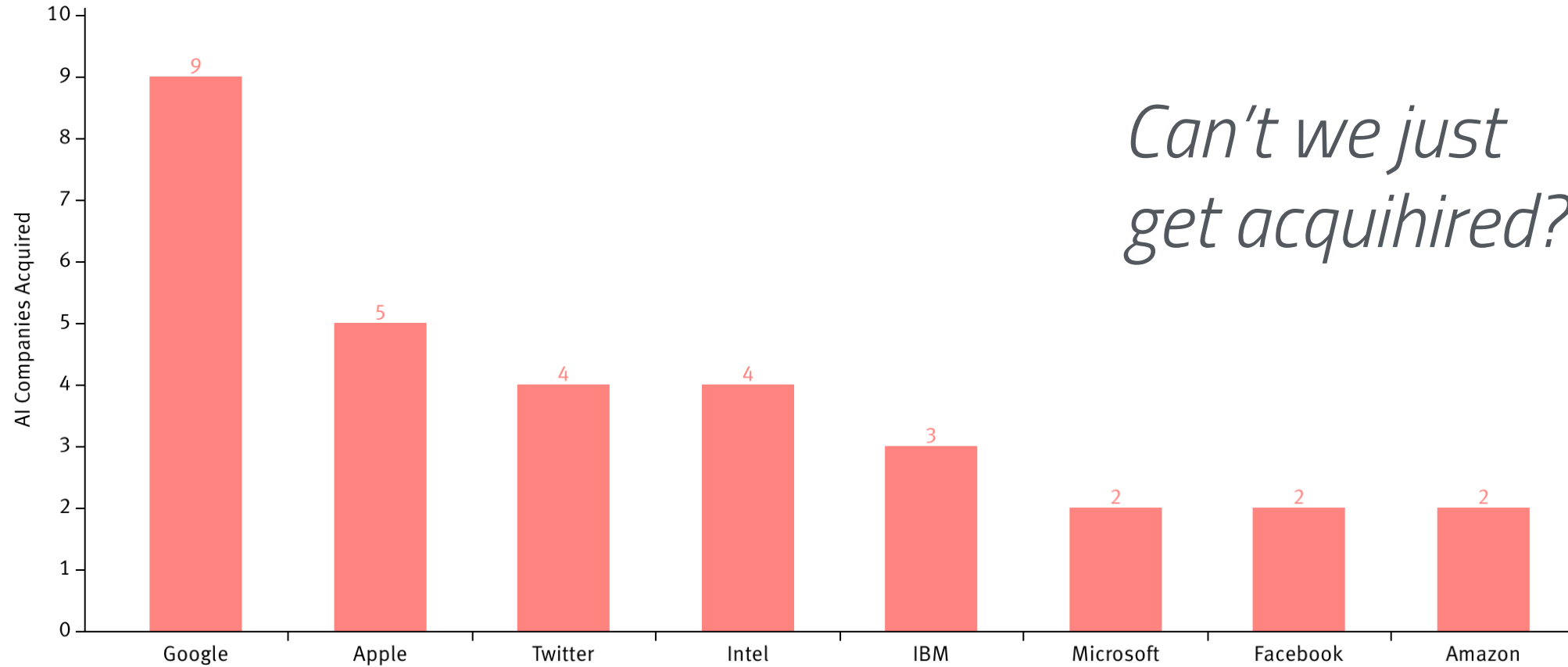
**Automated
profiling**

Right to an explanation

Non-discriminatory

Everyone's buying AI startups...

Tech Firms' AI Acquisitions
2014-2016



*Can't we just
get acquired?*



Source: CEB

Go big or don't go VC

This is a public version of a Microsoft [ThinkWeek paper](#) that was recognized as top-30 in late 2009

Online Experimentation at Microsoft

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1/3

1/3

1/3

Controlled experiments, also called randomized experiments and A/B tests, have had a profound influence on multiple fields, including medicine, agriculture, manufacturing, and advertising. Through randomization and proper design, experiments allow establishing causality scientifically, which is why they are the gold standard in drug tests. In software development, multiple techniques are used to define product requirements; controlled experiments provide a valuable way to assess the impact of new features on customer behavior. At Microsoft, we have built the capability for running controlled experiments on web sites and services, thus enabling a more scientific approach to evaluating ideas at different stages of the planning process. In our previous papers, we did not have good examples of controlled experiments at Microsoft; now we do! The humbling results we share bring to question whether a-priori prioritization is as good as most people believe it is. The Experimentation Platform (ExP) was built to accelerate innovation through trustworthy experimentation. Along the way, we had to tackle both technical and cultural challenges and we provided software developers, program managers, and designers the benefit of an unbiased ear to listen to their customers and make data-driven decisions. A technical survey of the literature on controlled experiments was recently published by us in a journal (Kohavi, Longbotham, Sommerfield, & Henne, 2009). The goal of this paper is to share lessons and challenges focused more on the cultural aspects and the value of controlled experiments.

1. Introduction

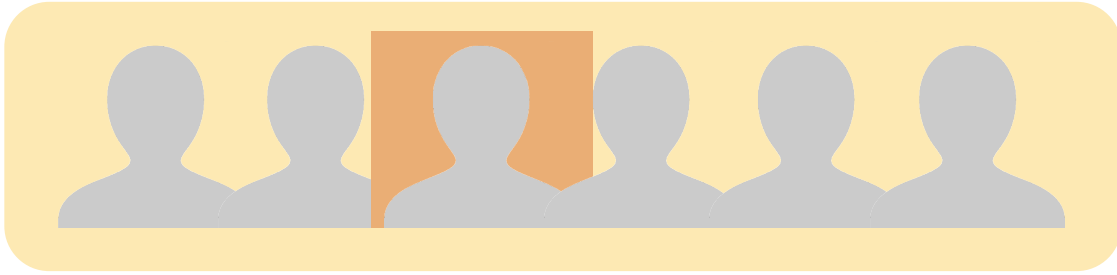
We should use the A/B testing methodology

Distribution of winners



"Long tail" by User:Husky - Own work. Licensed under Public Domain via Commons - https://commons.wikimedia.org/wiki/File:Long_tail.svg#/media/File:Long_tail.svg
Unicorn: <http://discoverie.deviantart.com/art/Winged-Unicorn-400901130>

Ownership implications



Reminder: you're competing for a partner's time...

- When the company wins big, the fund needs to win big too
- Often prefer to invest *more* money in return for a meaningful ownership stake

20%

Recap: some of the things we look for

- Team
 - Passion
 - Technical & domain expertise
 - Commercial instincts
 - Situational awareness
- Market size
- Metrics (& Models)
- Defensibility
- Data flows
- Preference for companies towards the top of the stack
 - but not exclusive
- A good story!
- Deal structure




<https://teespring.com/rocketai2016#pid=369&cid=6527&sid=front>

So you're doing AI/ML/DL/...



AI in Europe 2015

<p><i>General AI</i></p> 	<p><i>Predictive Analytics</i></p> 	<p><i>Image Recognition</i></p> 	<p><i>NLP, Speech & Text</i></p> 
<p><i>ML as a Service</i></p> 			
<p><i>Customer Intelligence</i></p> 	<p><i>Expertise Capture</i></p> 	<p><i>Personal Assistants</i></p> 	<p><i>Fraud & Security</i></p> 
<p><i>Healthcare & Genomics</i></p> 	<p><i>Industry</i></p> 	<p><i>Agriculture</i></p> 	<p><i>Self-driving Cars</i></p> 
<p><i>Ecosystem</i></p> 			

Source: Machine Learning Prepared Mind, Sep 2015

European Machine Intelligence Landscape

Privately Held & Recently Exited Companies

Fundamentals



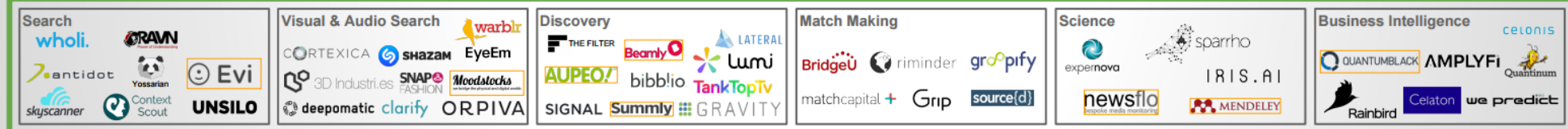
Autonomous Systems



Human Machine Interaction



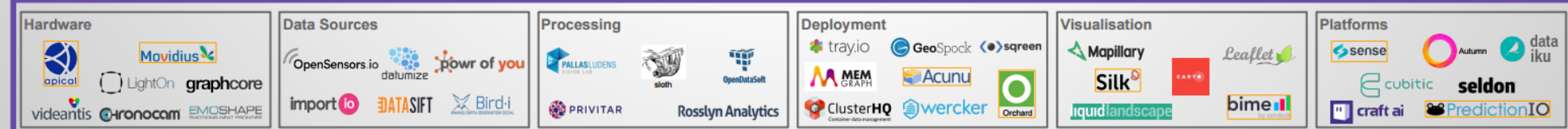
Search & Discovery



Industries



Picks & Shovels



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Europe
2016

TECHNOLOGIES

Funding Angel Seed Early Stage Growth

Analytics/
Optimisation
Satalia Mindi Peak

Autonomous Systems
Accelerated Dynamics FiveAI
Evolve Dynamics Pathwise Robotics
Intelligent Robotics

Computer Vision/Perception
Emteq Aurora AI MicroBlink
Blue Vision Labs GiveVision
Machines With Vision Neurence
Visio Ingenii Tractable

Conversational Agents/
Speech
Action.AI Speechmatics
LastMileTechnologies

AI Enablers
Bloom.ai Neo AI
Brytlyt Hadean Seldon
Sembient ThinkLab.AI

R&D/Other
Weave.ai Jukedeck Daden
Greedy Intelligence Bloomsbury AI Prowler.io
Cambridge Quantum Computing Mind Foundry
Focal Point Positioning Intelligent Layer

SECTORS

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Agriculture
Global Surface Intelligence
KisanHub

Education
BridgeU Century
Kwiziq Synap

Entertainment
Artomatix Antix
eBlur Jottr Kompas
Sonalytic

Finance
Aire Cleo AI Silicon Markets Oseven Telematics TypeScore Fractal Labs
Brolly Ernest.AI Plum AlgoDynamix Tallysticks Semantic Evolution
Chip FinGenius BMLL Technologies ForwardLane Alpha I Vortexa Spixii

Food & Drink
IntelligentX Nuritas
Gousto

Infrastructure
Alchera Technologies TravelAI Terrabotics
Biscuit.io Calipsa Limejump Disperse.io
Gyana OpenCapacity Xihelm Sky-Futures

Legal
Eigen Technologies
Luminance
ThoughtRiver

Retail
AI Build Hoxton Analytics Sanctum Thread
Cocoon Cortexica Proximus Third Eye
Emotech Ltd

Manufacturing
Flexiton Senseye
CloudNC

Healthcare
Avalon AI Kheiron Medical Your.MD Snap40
Babylon Health Desktop Genetics Deontics
BenevolentAI PetaGene Viz Clinithink

FUNCTIONS

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Business Intelligence/Analytics
Logical Glue Almax Analytics Knowsis Hertzian Telectic Neon Century Intelligence
Massive Analytic Simudyne Krzana Cytora Amplyfi Policy Radar Ripjar
Singular Intelligence Acuity Trading Import.io Signal Media Digital Contact

Human Resources
Context Scout StatusToday Potentially Grad DNA BioBeats
ThisWay Global Quantize Beamery Saberr Taylor.ai Cyra

Information Technology
Celaton Rainbird Technologies Retechnica
Ravn Systems Linguamatics Grakn Labs
Boldmind Automated Intelligence
Create Intelligence Drayson Technologies Skipjaq
Fantoo Exonar Redsift Mentat Innovations
Ampliphae Firedrop Penteract28 Fedr8
Re:infer Gluru

Marketing/
Advertising
Keelvar
Quotable

Procurement
Keelvar
Quotable

Sales
Kluster Intelligence GrowthIntel
Duedill Drafter

Compliance/Fraud
Behavox Elliptic Onfido AimBrain
Checkrecipient Cybertonica Ravelin
Featurespace VendorMach

Security
Cyberlytic Darktrace
Honeycomb Technologies
CyberSparta Encode

MARKETING/ADVERTISING FUNCTION

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Analytics/Process Optimisation
Black Swan Data Perfect Channel Decibel Insight Nudgr
Crystal Apps Metageni Bibiblio Idio StoryStream LoopMe
Admedo Realeyes Insider Iotec Tumra Permutive
Mercanto Metafused Machine London Concured

Augmented
Content
BoomApp
Blippar
Vyking

Sentiment Analysis
Adoreboard Twizoo
DigitalMR SentiSum
Echobox TheySay
FindTheRipple

Advanced Targeting
Pixoneye Visual DNA Codec
Adbrain Converstity Otus Lab
Big Data for Humans Suzu
Sweet Pricing Popcorn Metrics

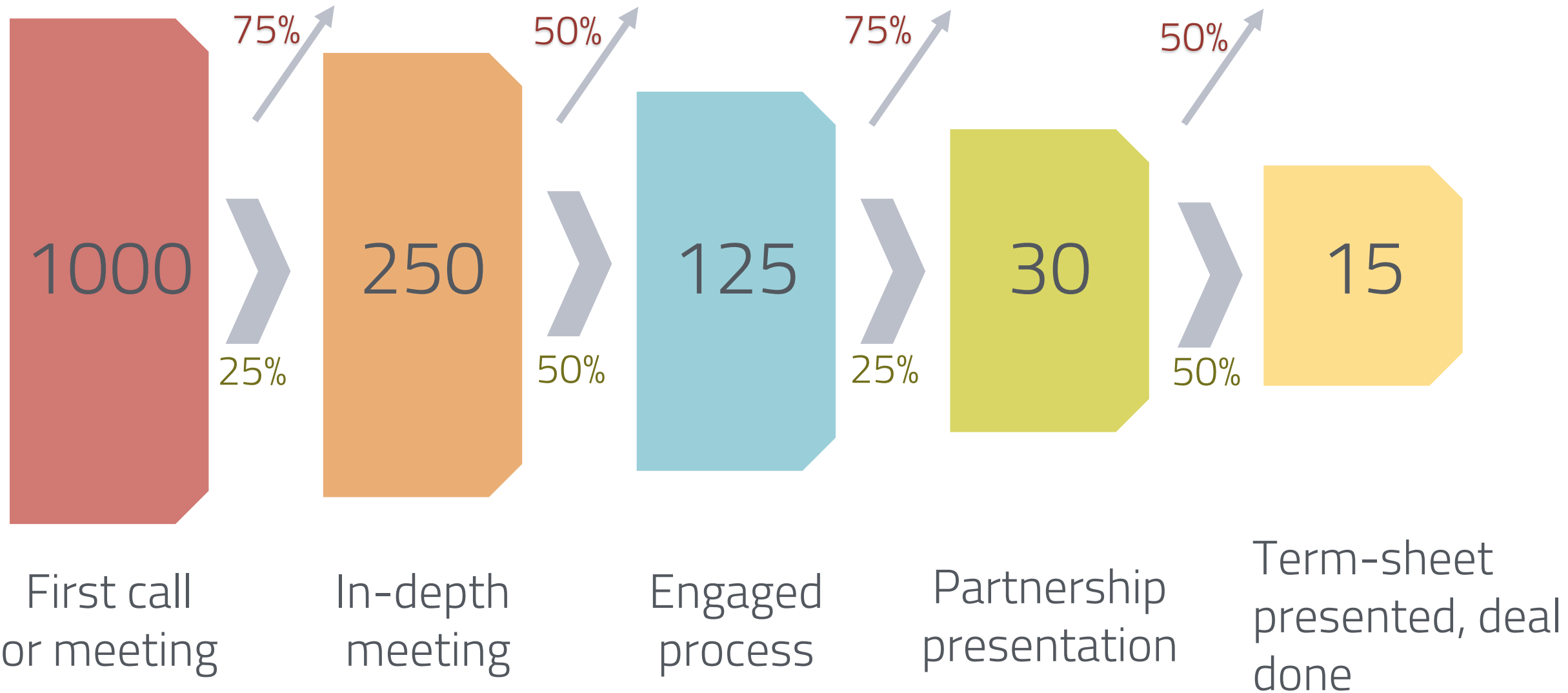
Language Generation
Assist AI Hutona
True AI Phrasee
DigitalGenuis

Purchase Discovery/
Recommendation
Swogo SuitsMe
Visii

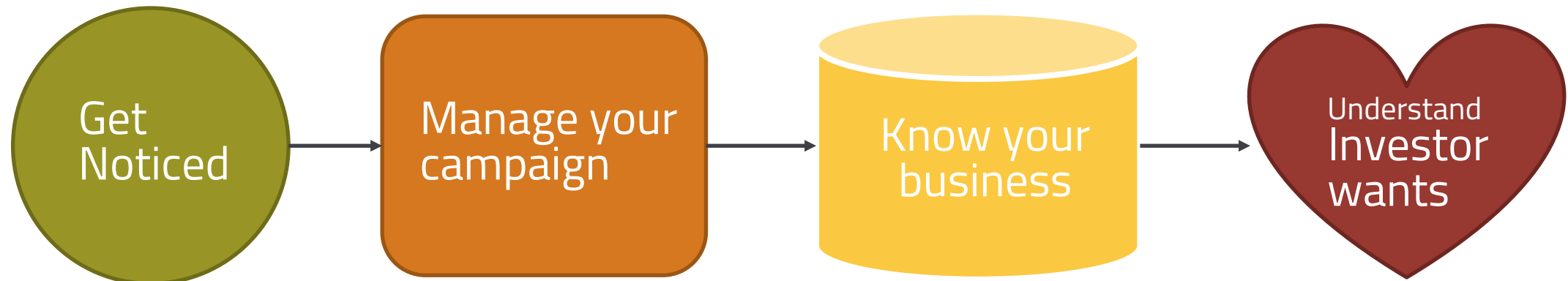
Just the UK,
2017

Investment pipeline

Tracking...



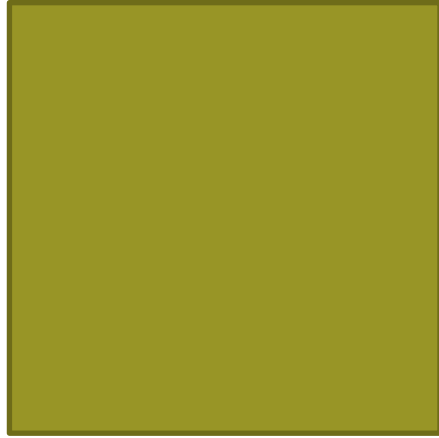
Fundraising advice



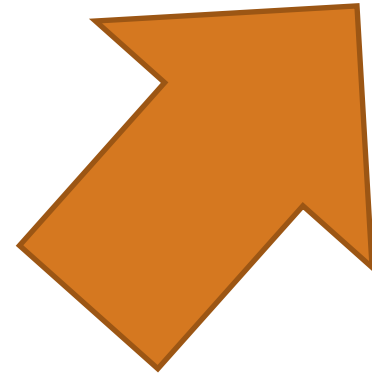
Company building advice



Start
small



Think
big



Grow in
control

(Ruth Rogers, on starting a restaurant business)

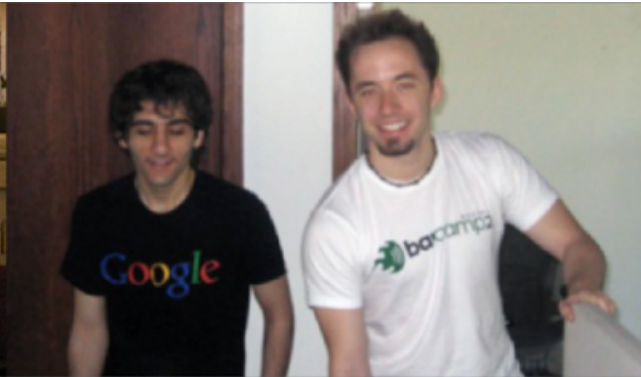
Advice from Nicolas Dessaigne, CEO Algolia

- Forget about [TREC](#)! Find a real problem that customers care about :)
- One of the next big trends is going to be conversational UIs (not limiting ourselves to chatbots here). It's a super interesting area as search is going to be at the core of it, having knowledge of both the application data and the users intent.

Remember: everyone starts small...



Mike Cannon-Brookes and Scott Farquhar's first office, based out of the local Kinko's



Drew Houston and Arash Ferdowsi's apartment in 2007



Stewart Butterfield working out of Tiny Speck's first office in 2010



Mark Zuckerberg's dorm room in 2005 where the first versions of Facebook were built



Ilkka Paananen sitting at his cardboard desk in 2010



Girish Mathrubootham in FreshDesk's first office where rent was \$160 per month



Cloudera founding team in their first office in 2009



Sachin Bansal and Binny Bansal in 2008 at their first office, which was also the warehouse

Accel

Thank you!
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