

The Networked Platform Revolution:

Why integrated systems
are replacing stand-alone products
and what it means for business

A talk in three parts:

PART ONE

**From stand-alone products
to integrated systems**

PART TWO

The role of platforms

PART THREE

Some implications

From stand-alone products to integrated systems

We are in the midst of
a fundamental shift
in how we view the world.

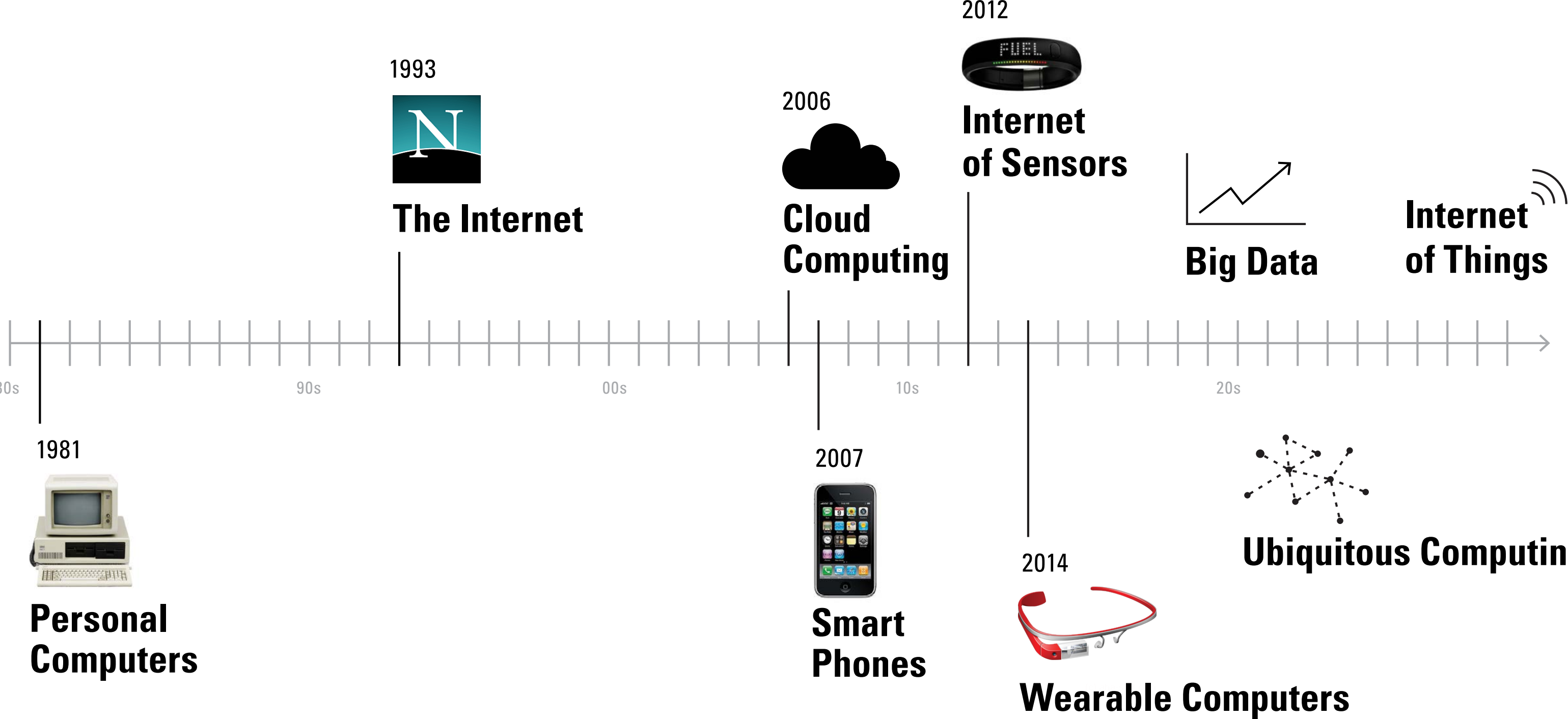
from

Industrial age

to

Information age

Several “revolutions” are interacting, fostering “combinatorial innovation.”



Product Eras

Subsistence	Craft	Manufacturing	Information
Made at home as needed	Made one at a time by specialists	Made in large editions by teams	Made on demand by anyone
Used at home	Used by others, often known by the maker	Used by others, almost always unknown to the makers	Tailored to each user, by definition known to the system
Sourced by user	Sourced locally	Distributed globally	Available anywhere, anytime
Hunting + gathering	Agriculture	Power sources	Computers
Family groups	Cities	Shipping networks	Data networks

The shift in world view
is changing
the nature of products.

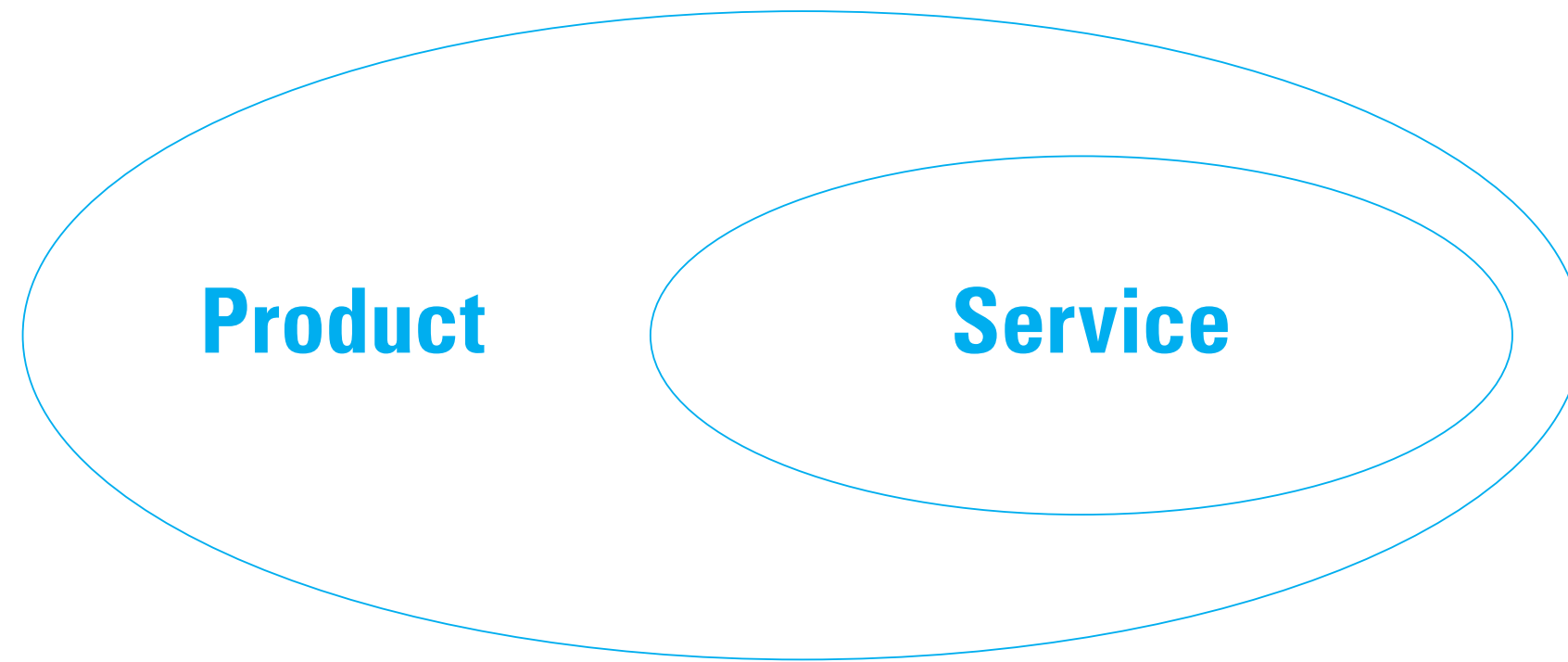
from
Objects



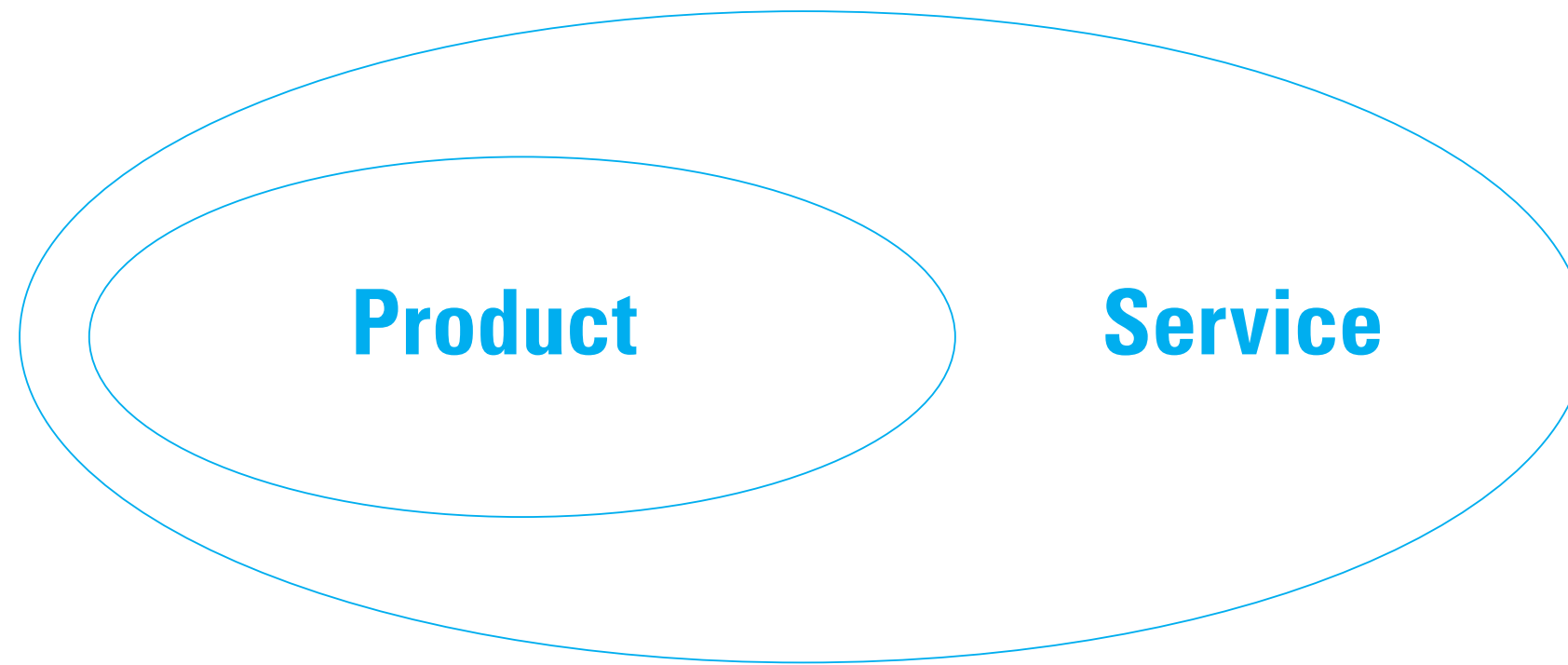
to
Experiences



Traditionally, “**products**” has meant
not just hard goods
but also information and **services**.



In the last 20–30 years,
“**services**” have become a way
to deliver “**products**.”



*“... commercial products are best treated
as though they were services.*

*It's not what you sell a customer,
it's what you do for them.*

*It's not what something is,
it's what it's connected to, what it does.*

*Flow becomes more important than resources,
Behavior counts.”*

— Kevin Kelly, Wired



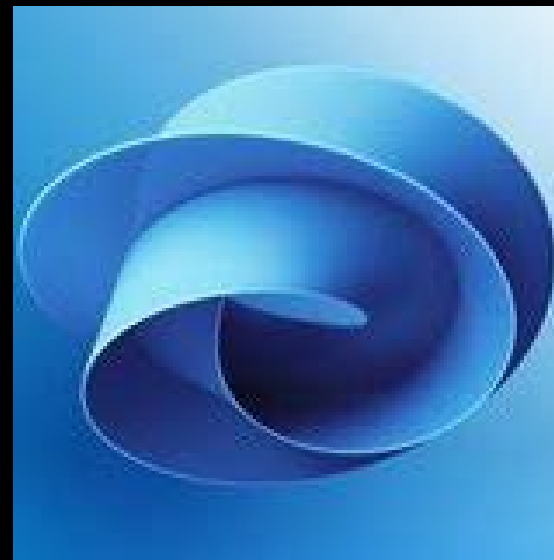
In this view, products are delivered *as* services;
e.g., GE builds engines *and* sells aircraft up-time.



Formerly “shrink-wrapped” **software**
is now being “**rented.**”



Adobe Creative Cloud

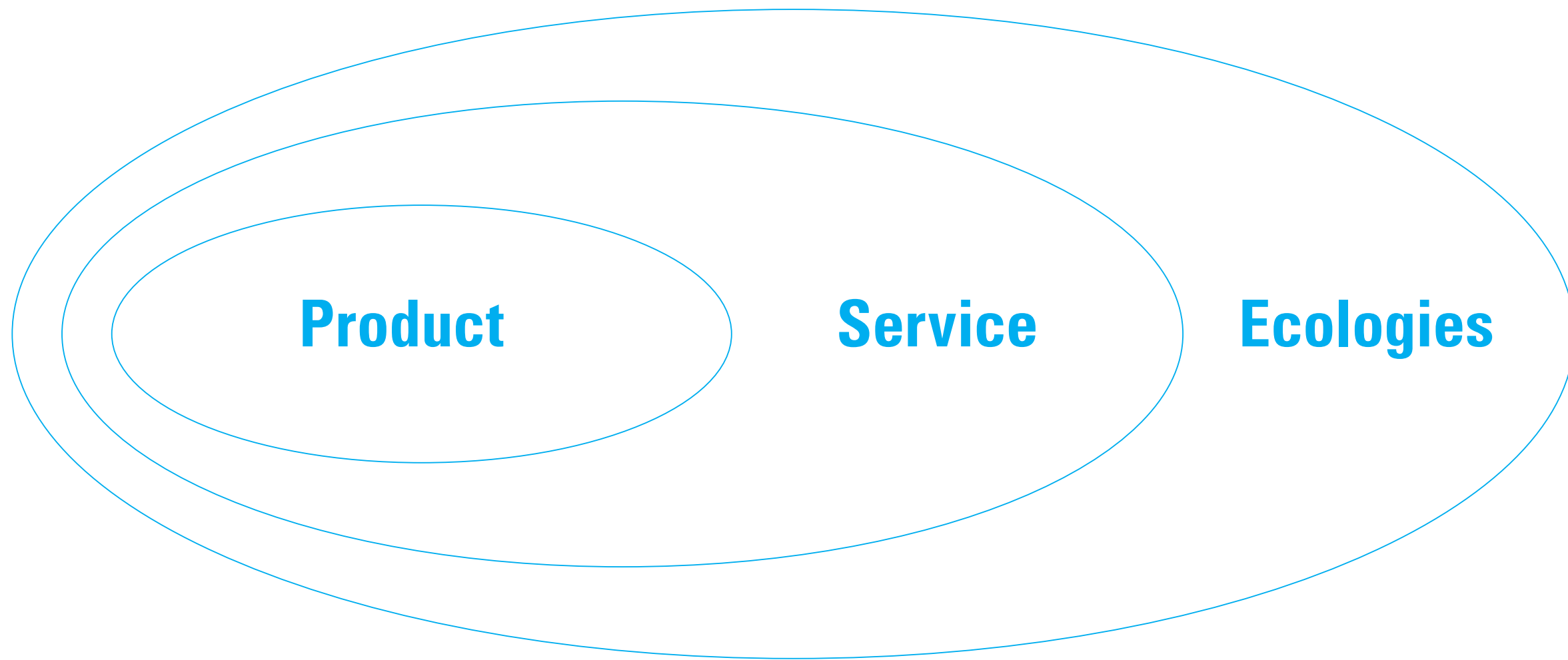


Autodesk 360



Microsoft Office 365

More recently,
services are connecting to **integrated systems**,
forming **product service ecologies**.



*“... networks of products,
services, technology, people,
and collective and collaborative interaction
are generating value
for the populations they serve.”*

— Jodi Forlizzi, CMU



The “Space” of Products

	Product ("stuff")	Service (delivering products)	Ecology (connecting services, etc)
Primary level	Materials + Labor (sell)	Processes + Interaction (coordinate)	Networks + Cooperation (co-create + co-evolve)
Meta level	Tools (make more stuff)	Platforms (make new types of products + services)	Language (build knowledge)

Stages of Experience

—Pine & Gilmore

Commodity



1¢–2¢ Per Cup

Beans

Goods



5¢–25¢ Per Cup

Roasted and ground

Service



75¢–\$1.50 Per Cup

Brewed and served

Experience

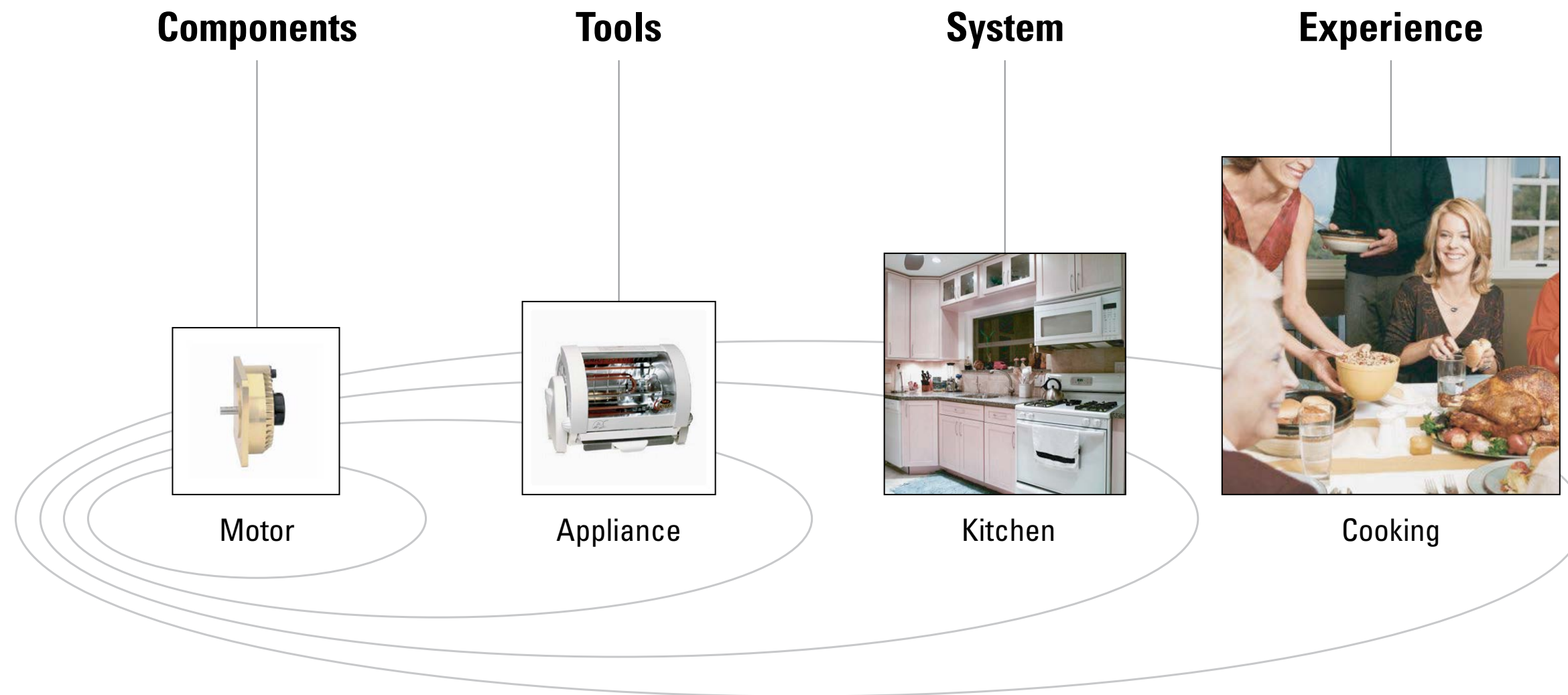


\$2–\$5.00 Per Cup

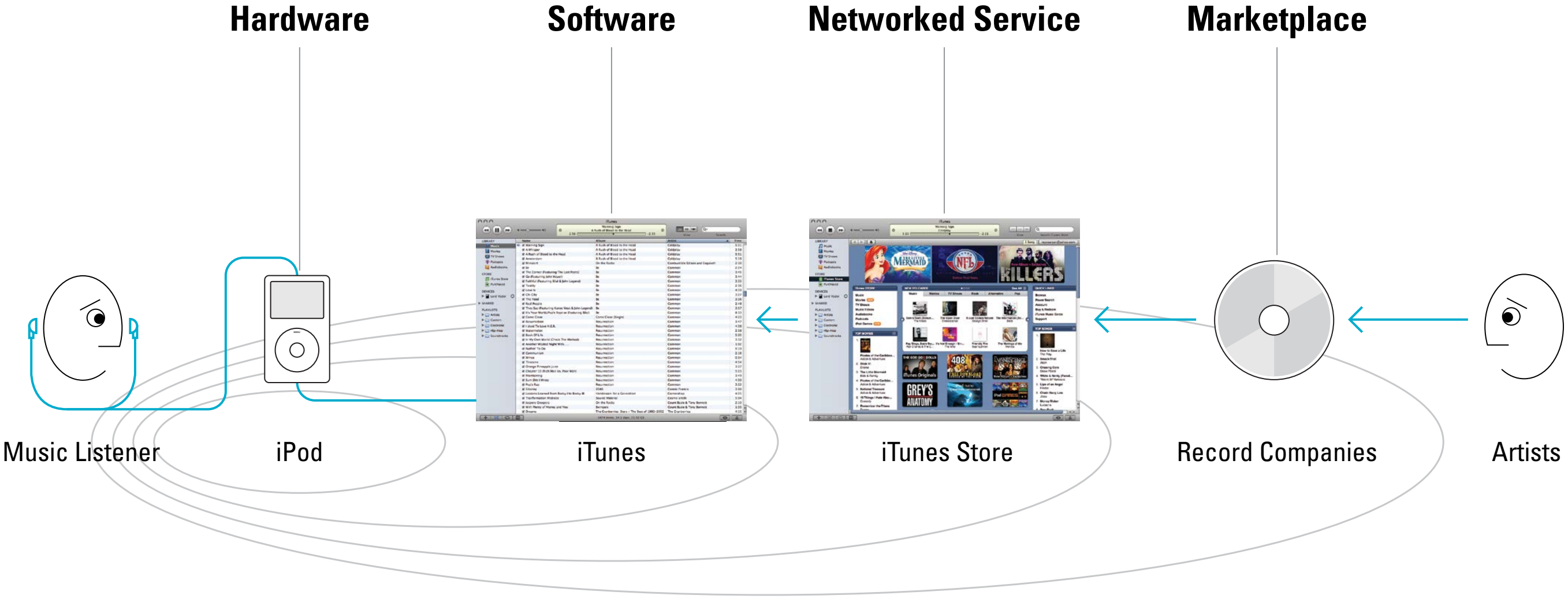
Treating yourself
to something special

Market-space

—Rheinfrank & Murrell



iPod is not a stand-alone product; it's an integrated system— a **product-service ecology**.



Apple has cautiously opened its ecology to others— teaming up with Nike to extend the iPod system.

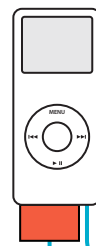
**Pressure
Sensor**



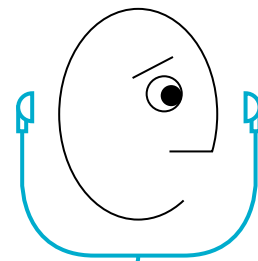
Shoe



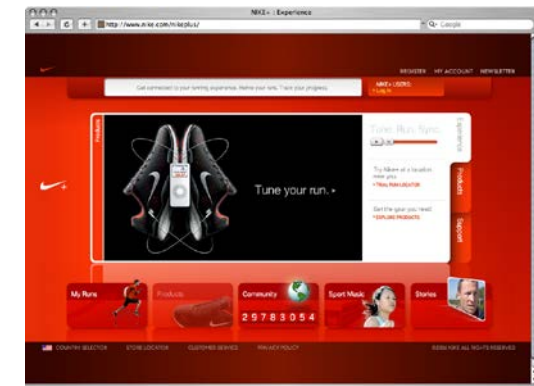
**iPod Nano
(with Receiver)**



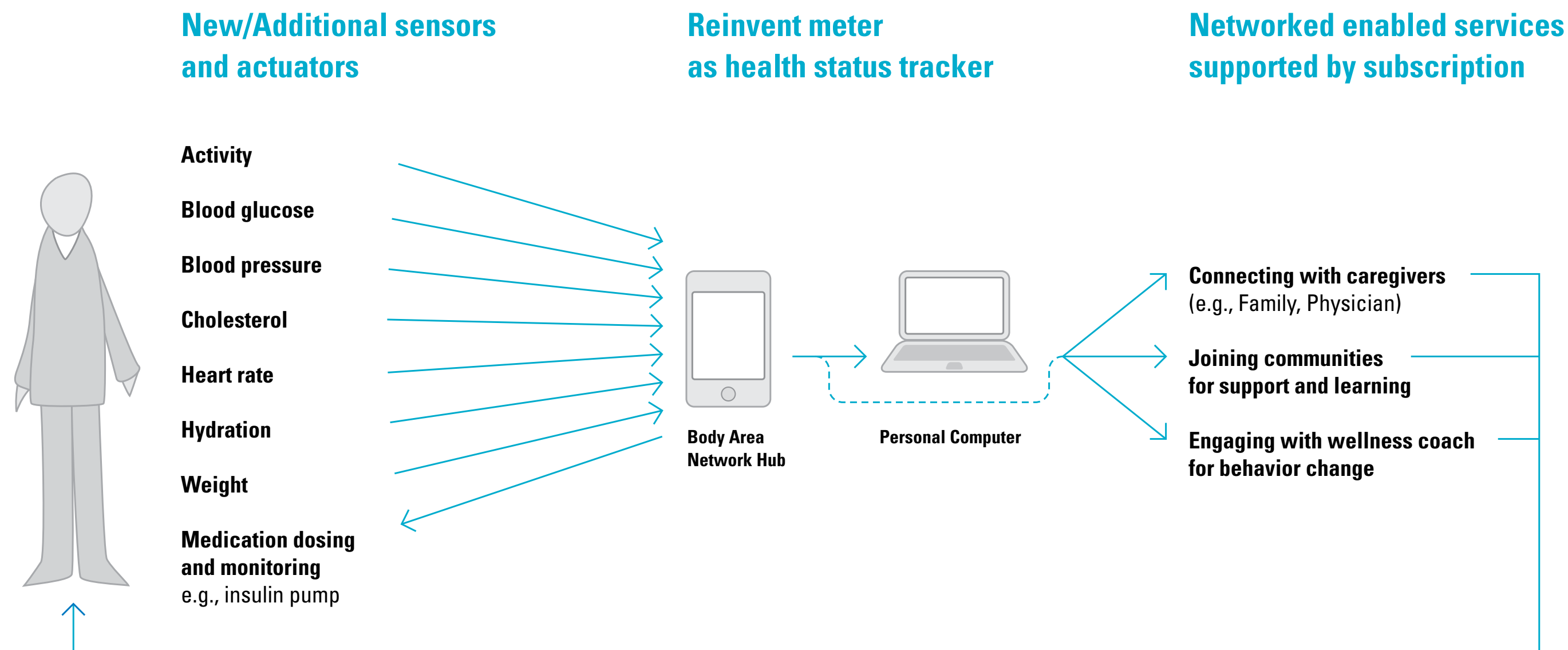
User



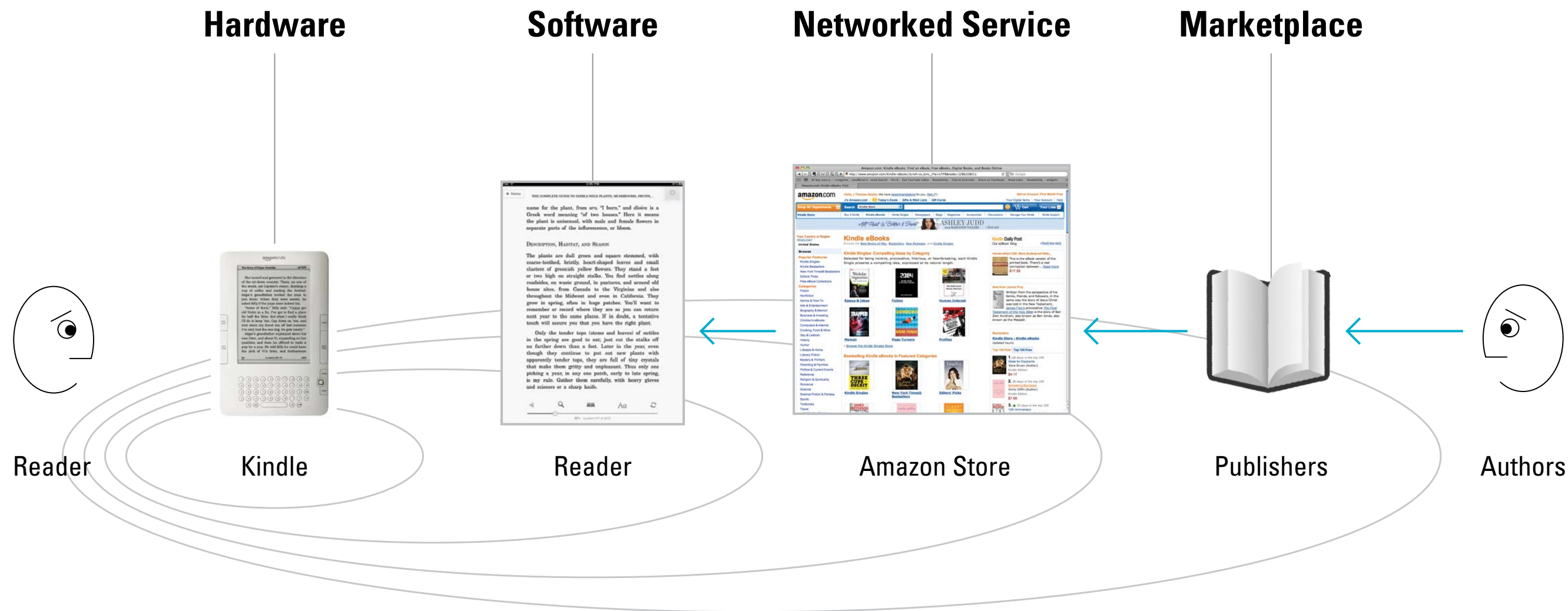
Nikeplus.com



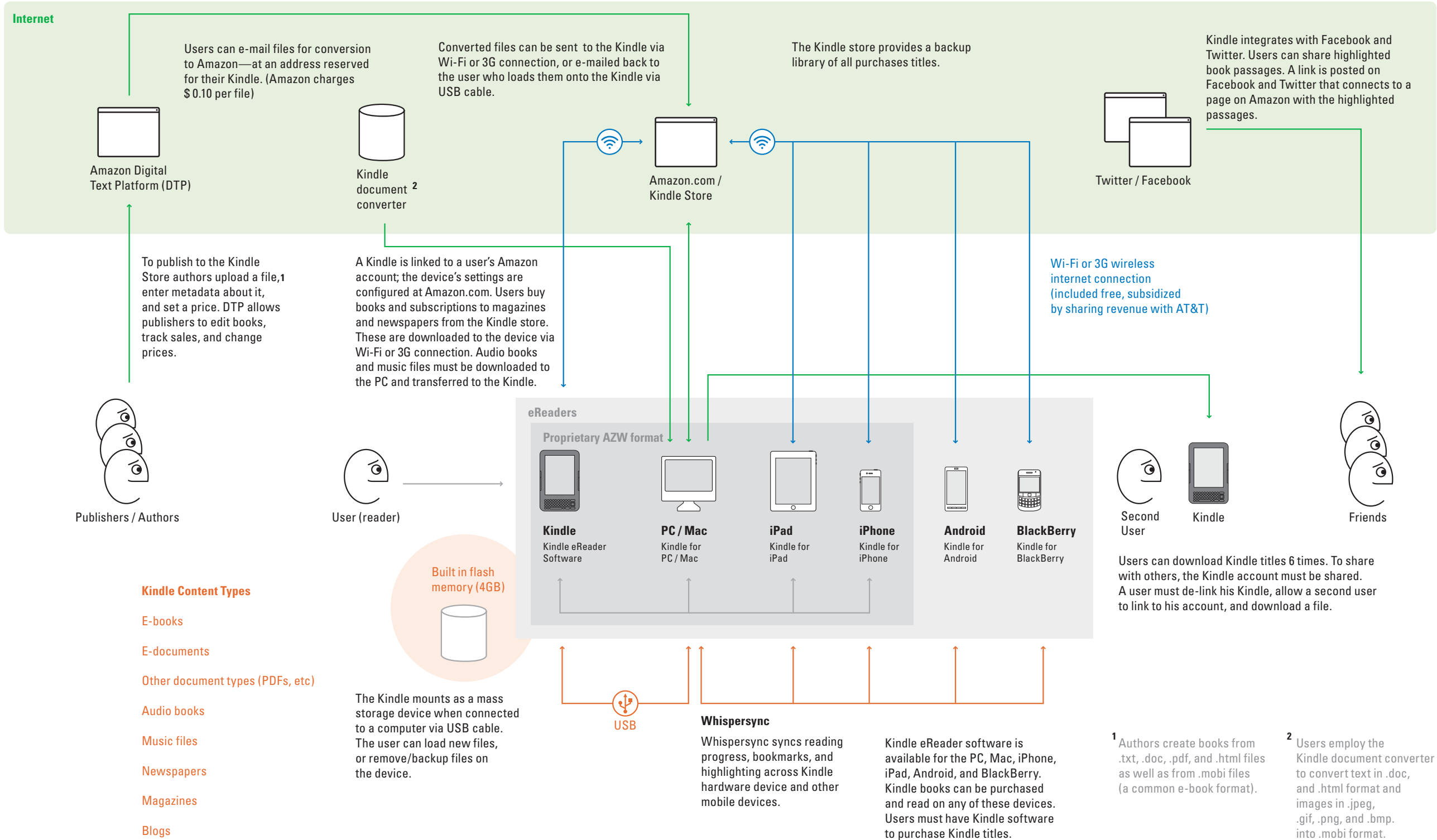
In just a few years, iPhone and other smartphones will become hubs of **body-area networks**.



Amazon's Kindle-Reader-Wispernet-Store system is another product-services ecology.



In fact, the Kindle ecology is even more complex.



*“I think of [the Kindle] as a service.
Part of [it] is of course the hardware,
but really, it’s the software, the content,
it’s the seamless integration of those things.”*



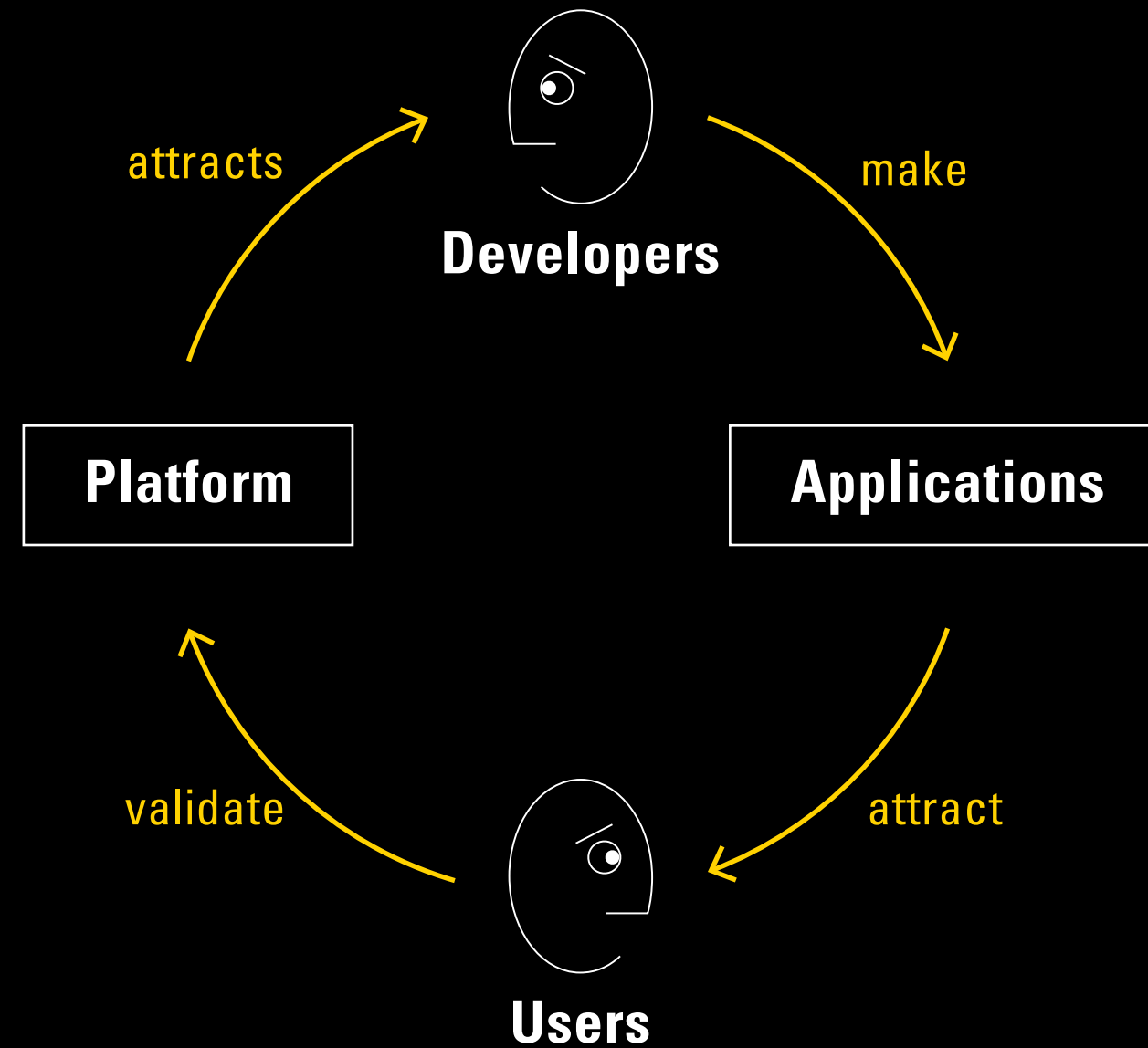
— Jeff Bezos, founder of Amazon

The role of platforms

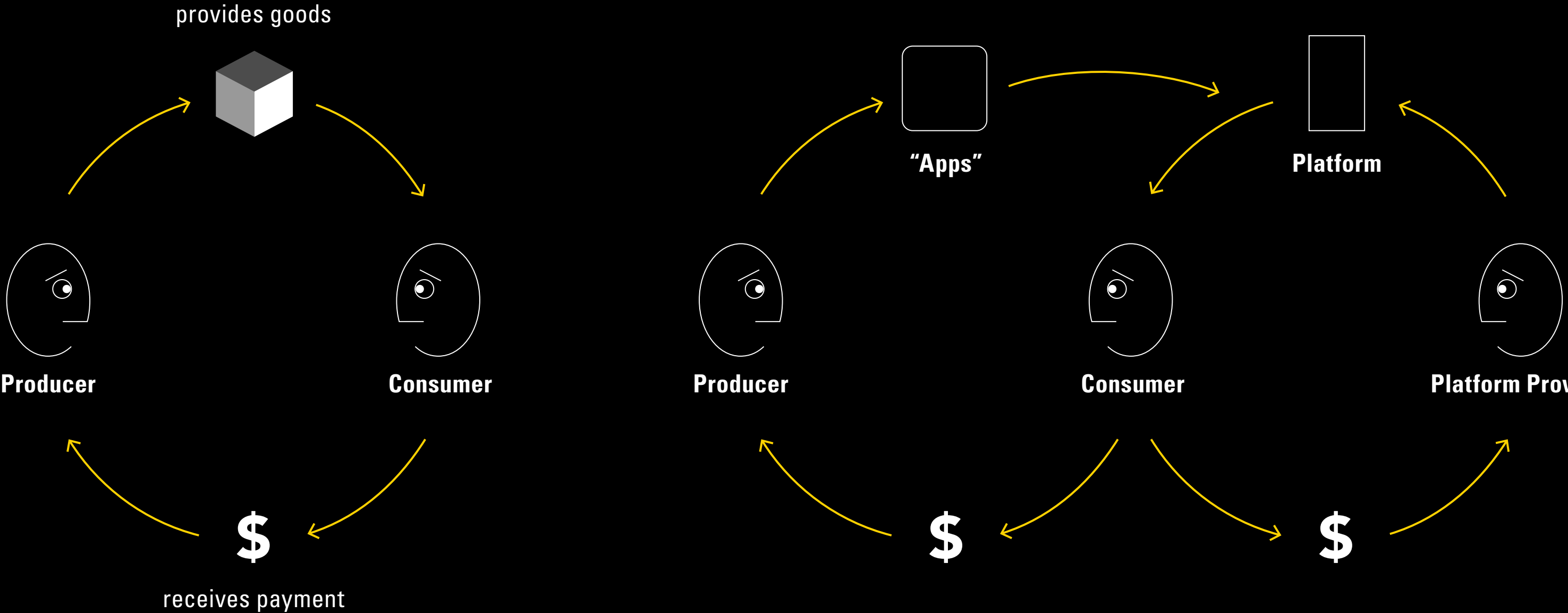
The “Space” of Products

	Product ("stuff")	Service (delivering products)	Ecology (connecting services, etc)
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Platforms amplify their owners' investment.



Businesses create value by enabling others to create value.



Traditional producers

Platform providers

Yegge's Law

*“A product is useless without a platform,
or more precisely and accurately,
a platform-less product will always be replaced
by an equivalent platform-ized product.”*

— Steve Yegge, Google, Software Architect



“A ‘platform’ is a system that can be programmed and therefore customized by outside developers—users—and in that way, adapted to countless needs and niches that the platform’s original developers could not have possibly contemplated, much less had time to accommodate.”

—Marc Andreessen, founder of Netscape, Opsware, and Ning



A platform is a service on which others can build.

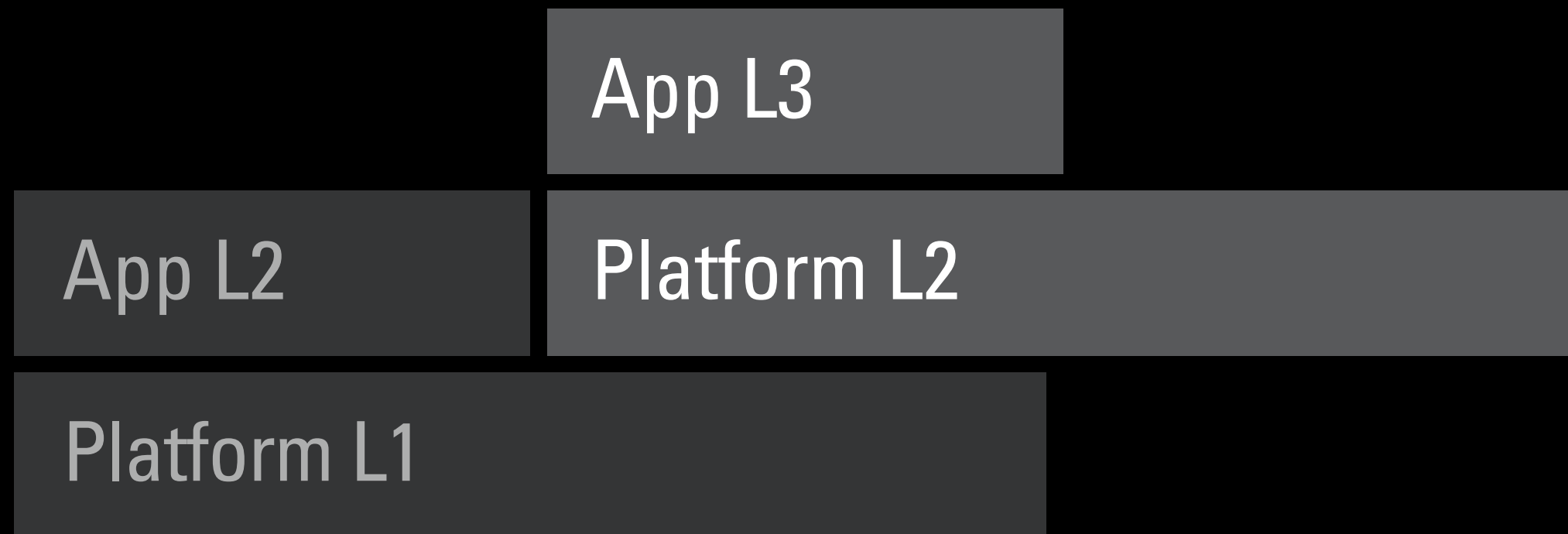


App L2

The diagram consists of two gray rectangular blocks. The top block is smaller and contains the text 'App L2'. The bottom block is larger and contains the text 'Platform L1'. The top block is positioned directly above the bottom block, illustrating that the application is built on top of the platform.

Platform L1

Applications rely on platforms;
but an app itself may be a platform
for another higher level app.



Microsoft made a fortune by controlling a “choke point”—the PC OS, linking apps and hardware.
Microsoft’s monopoly has lasted more than 30 years.

Local Documents

.doc, .xls, .ppt, etc.

PC Apps

Word, Excel, PowerPoint, etc.

Operating System (OS)

Windows

Processor

8086, 80286, 80386, etc.

The web threatens Microsoft's monopoly by introducing a new layer.

Web Documents

A, B, C, etc.

Web-based Apps

Amazon, Google, Facebook, etc.

Browser

Chrome, Firefox, IE, Safari

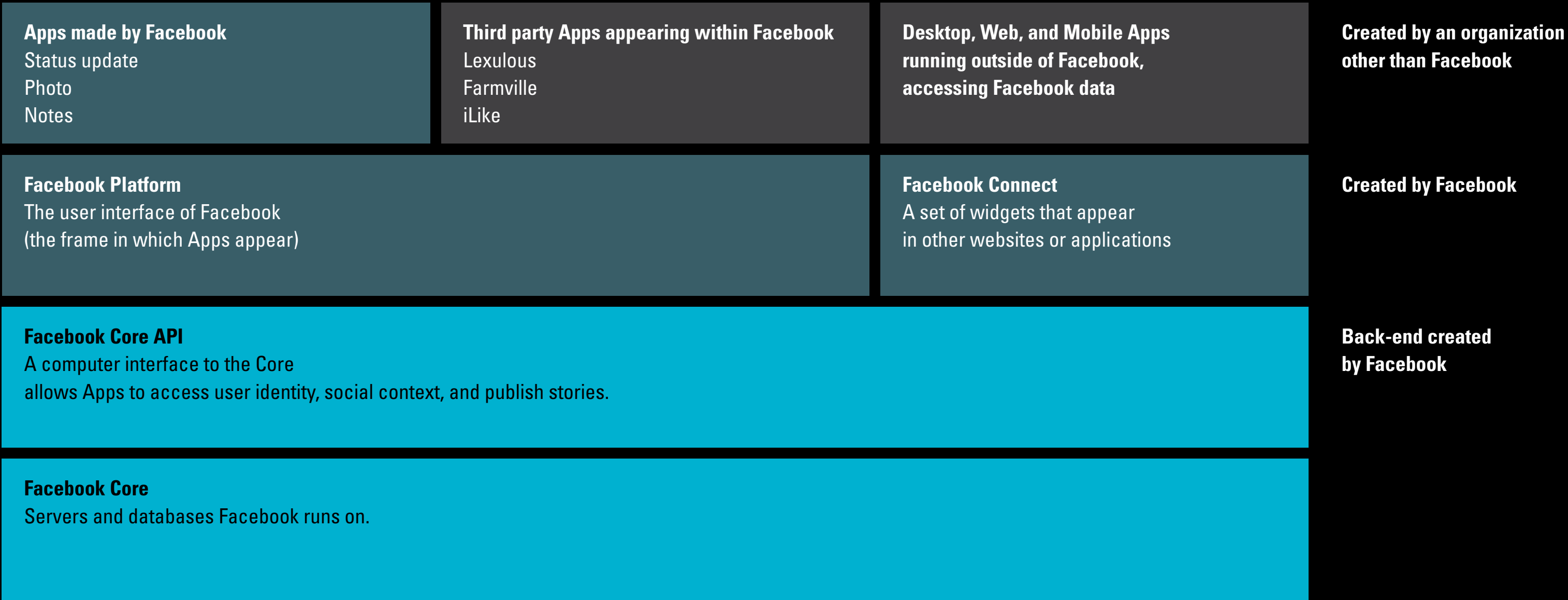
Operating System (OS)

Windows, Mac, Linux, etc.

Processor

Intel, ARM, etc.

Facebook has turned itself into a platform, enabling developers to offer apps that run in Facebook's site and providing access to user data to apps outside of Facebook.



Marc Andreessen's "Three Kinds of Platforms"

Level 3: Runtime Environment

Online platform runs uploaded code
e.g., Ning, Salesforce, Amazon

Level 2: Plug-in API

Plug-in shows up within the platform
but runs elsewhere
e.g., Facebook

Level 1: Access API

App runs elsewhere;
calls data from platform
e.g., eBay, PayPal, Flickr

**Apple, Google, and Microsoft are fighting
for control of the mobile development platform.
Each hopes to create another 30-year monopoly.**

iOS



~~webOS~~



~~symbian~~

















































~~bada~~

“We are once again approaching the point at which the Faustian bargain will be made: simply use our facilities, and the complexity will go away. And much as happened during the 1980s, there is more than one company making that promise. We’re entering a modern version of ‘the Great Game,’ the rivalry to control the narrow passes to the promised future of computing.”

— Tim O’Reilly, “The State of the Internet Operating System”

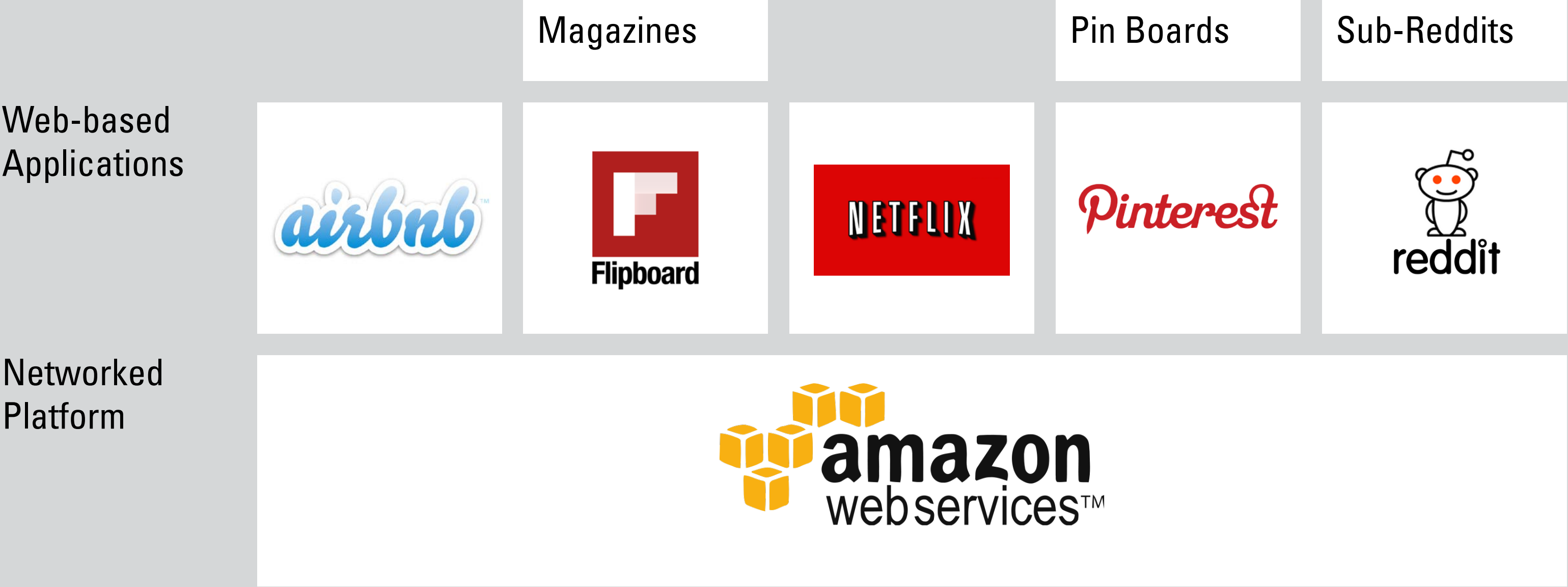


The Internet Operating System—Key Services × Major Players

	Storage	Media Access	Advertising	Payment	Maps	Location	Search	Social	Comm.	Mobile OS	Mobile Hardware	Web Browser
Amazon												
Apple												
Facebook												
Google												
Microsoft												

Where Google beat Yahoo (and Microsoft)—
Google built a million-server hardware platform.
Google product managers don't provision servers.

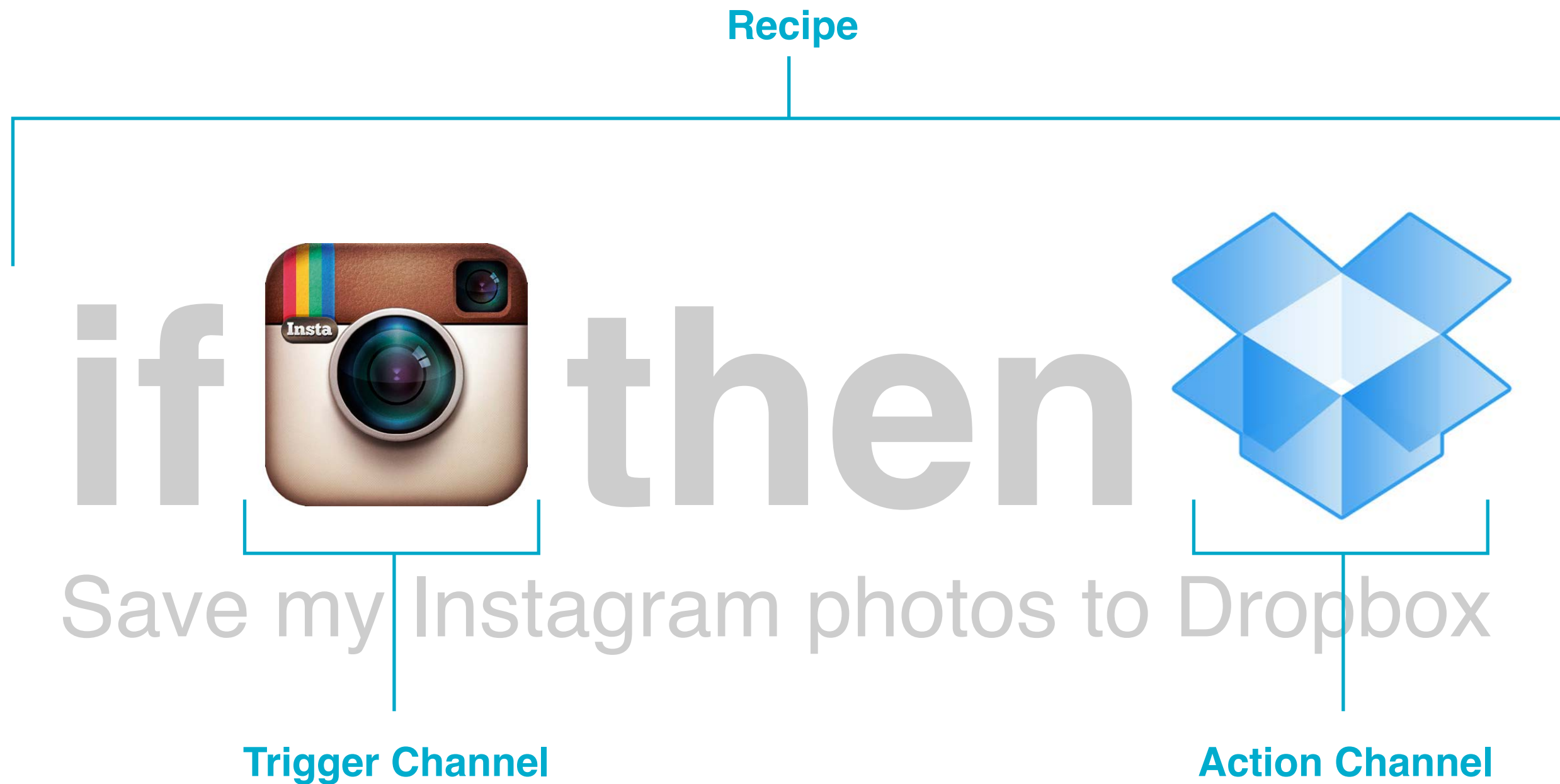
Where Amazon beats Google:
Amazon is a networked platform;
Google is not.



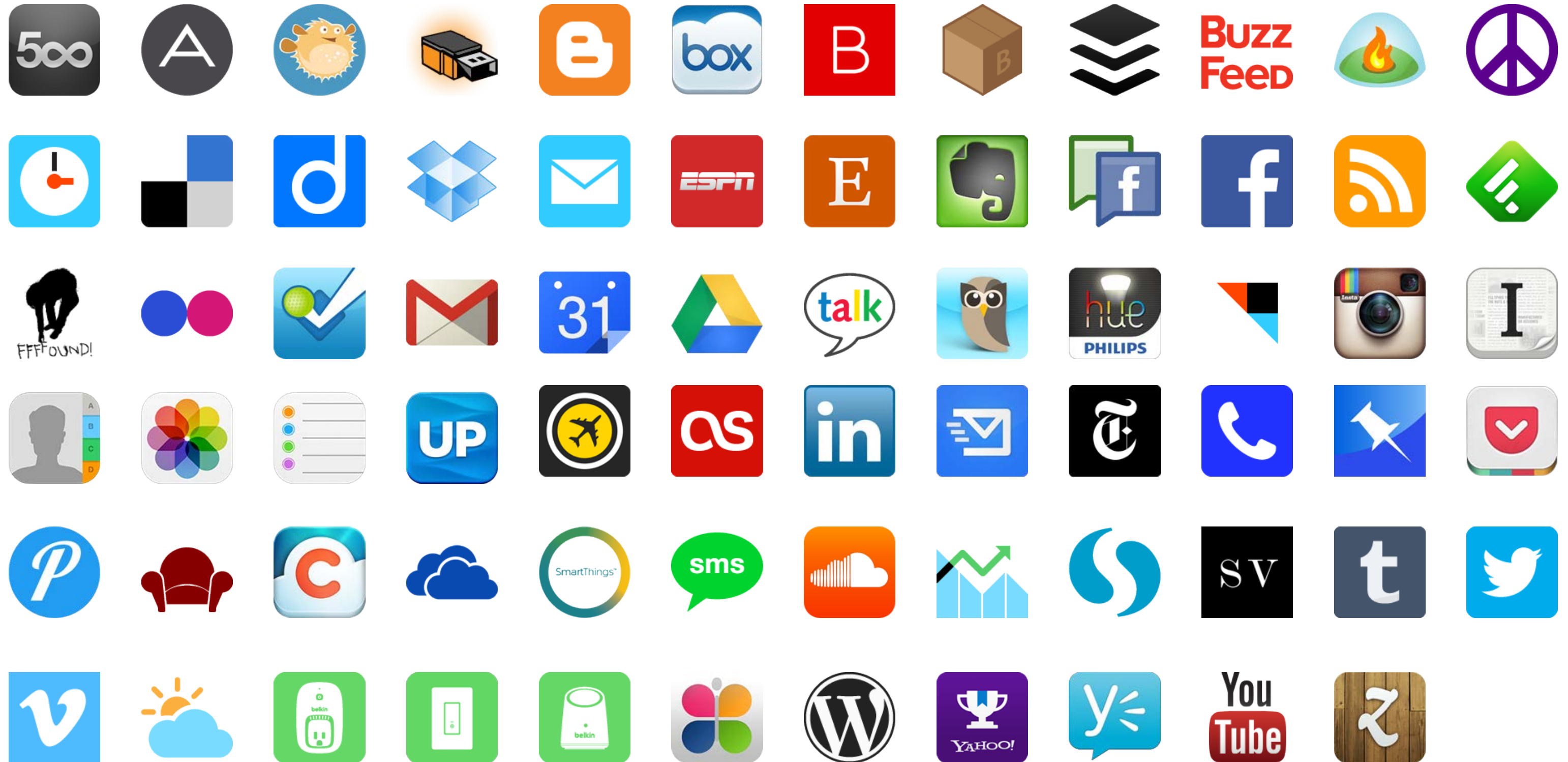
Jeff Bezo's “**Big Mandate**” on Platforms

- 1 **All teams will henceforth expose their data and functionality through service interfaces.**
- 2 **Teams must communicate with each other through these interfaces.**
- 3 There will be **no other form of interprocess communication allowed:** no direct linking, no direct reads of another team's data store, no shared-memory model, no back-doors whatsoever. The only communication allowed is via service interface calls over the network.
- 4 It **doesn't matter what technology** they use. HTTP, Corba, Pubsub, custom protocols—doesn't matter.
- 5 All service interfaces, without exception, must be **designed from the ground up to be externalizable**. That is to say, the team must plan and design to be able to expose the interface to developers in the outside world. No exceptions.
- 6 Anyone who doesn't do this will be fired.

IFTTT, If This Then That, enables you to set up recipes—**automated connections between web-based services.**



IFTTT supports 71 “channels” enabling more than 5000 recipes.



*“A platform is a system
that can be programmed . . .
the key term in the definition of
platform is ‘programmed.’
If you can program it,
then it’s a platform.
If you can’t, then it’s not.”*

—Marc Andreessen, founder of Netscape, Opsware, and Ning



“Programming” need not mean literally writing code.
“Programming” should be “plug and play.”



**Platforms are not about
software alone.**

Today, hardware must be
a platform, and even content
can be a platform.

For example, many types of home-hubs are entering the market.

Security



ADT
Pulse Home Security

Media



Logitech
Harmony 1100 Advanced Universal Remote

Appliance/Energy



GE
Nucleus Energy Manager

Routers



Apple
Airport Extreme



GE
FrontPoint Security Touchscreen



Control4
7" In-Wall Touch Screen with Camera



Nest
The Learning Thermostat



Cisco
Linksys EA4500

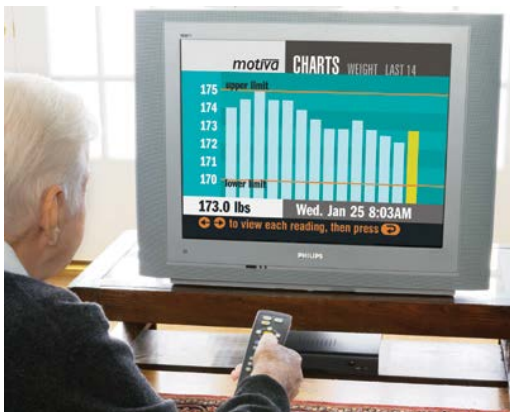
The healthcare home hub space is crowded.



Alere
DLM212



Philips
Telestation



Philips
Motiva (displayed through TV)



Intel
Health Guide PHS6000



Care Innovations
Guide Tablet



Care Innovations
Connect



Care Innovations
QuietCare sensors and data communicator



GrandCare Systems
Grandcare Interactive

Turning to content:

“Lost at sea” is a common story told in many ways.

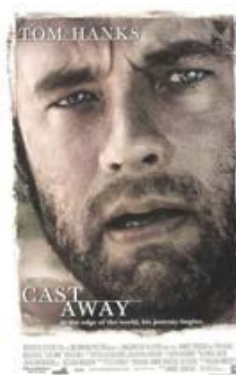
**Creates
characters and
context**

Visualizes

**Reuses
characters and
context**

**Elaborates in
great detail**

Becomes a platform



Book

Movie

**Procedural
TV Show**

**Serial
TV Show**

Story System

Robinson Crusoe

Castaway

Gilligan's Island

Lost

Lost franchise

Read once,
rarely again

Watched once,
rarely again

Episodes stand alone

All episodes must be
watched to make sense
of what's going on

Extreme fandom supports participation
on many levels, in many forms; creates
a “mythology”

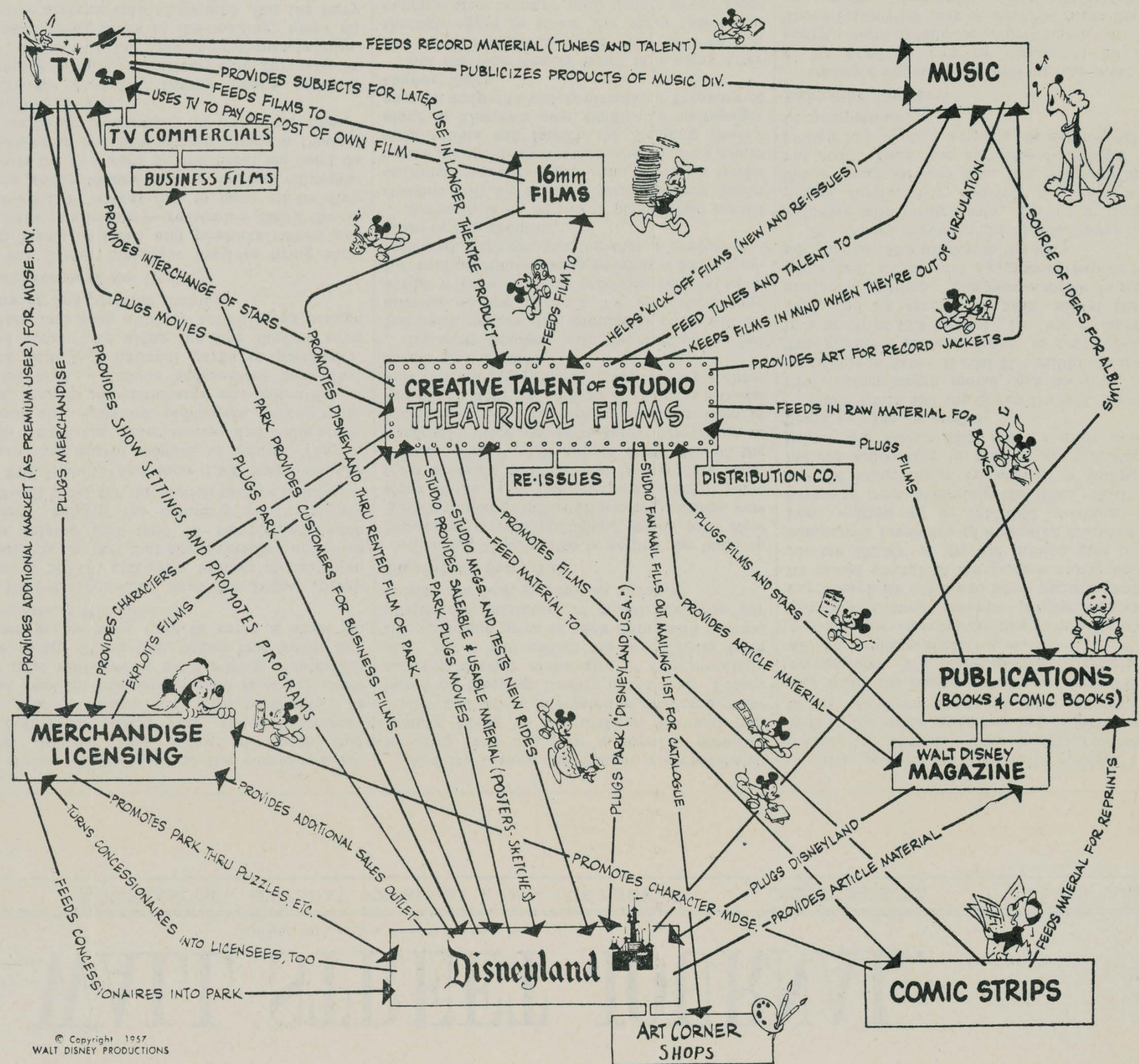
“Lost” is more than a TV show; it’s a content platform.



“Glee” is also a content platform.



Disney understood networked platforms early.



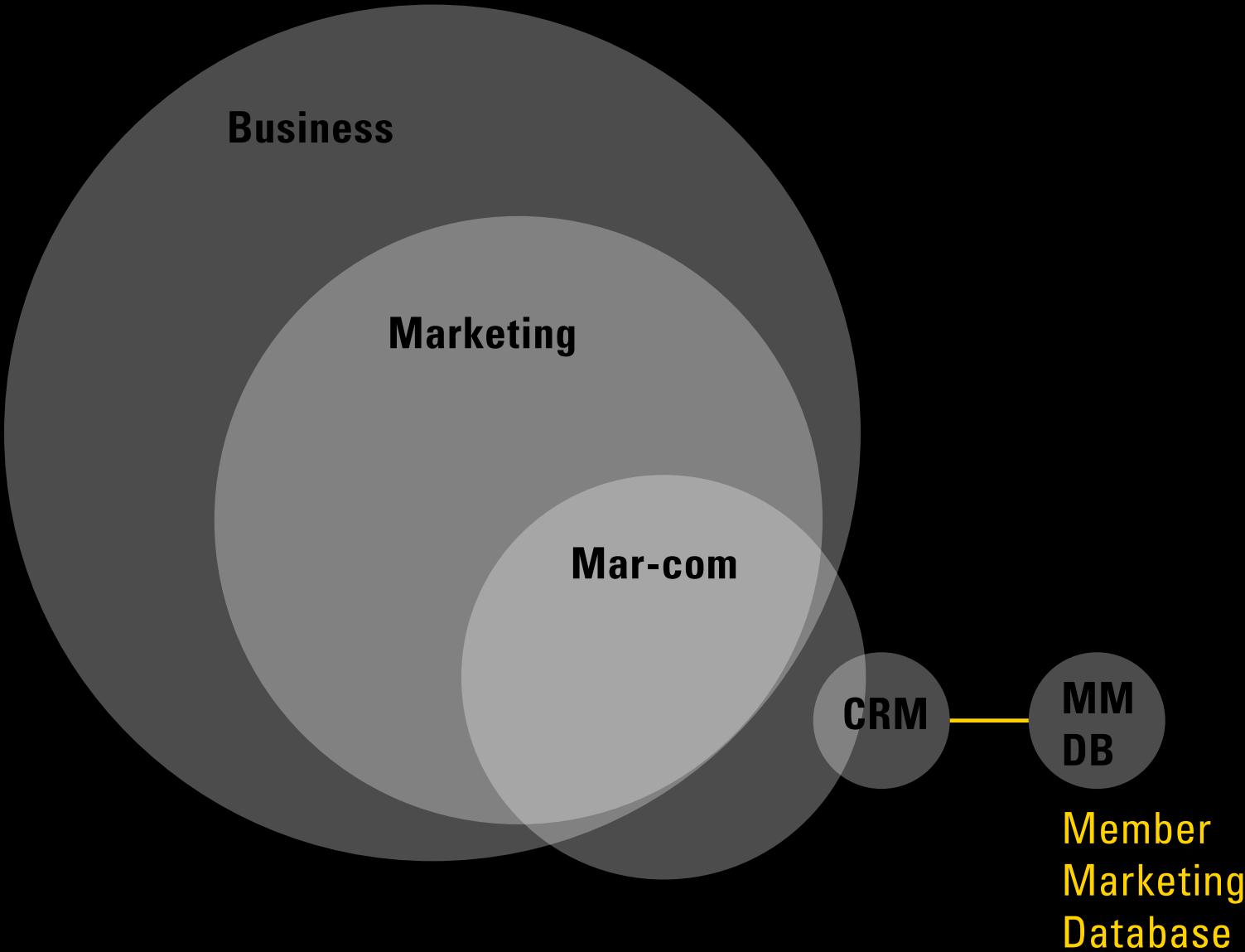
Some implications

*“[The Internet] is a giant machine
designed to give people what they want . . .
it offers convenience . . .
speed and cognitive ease.”*

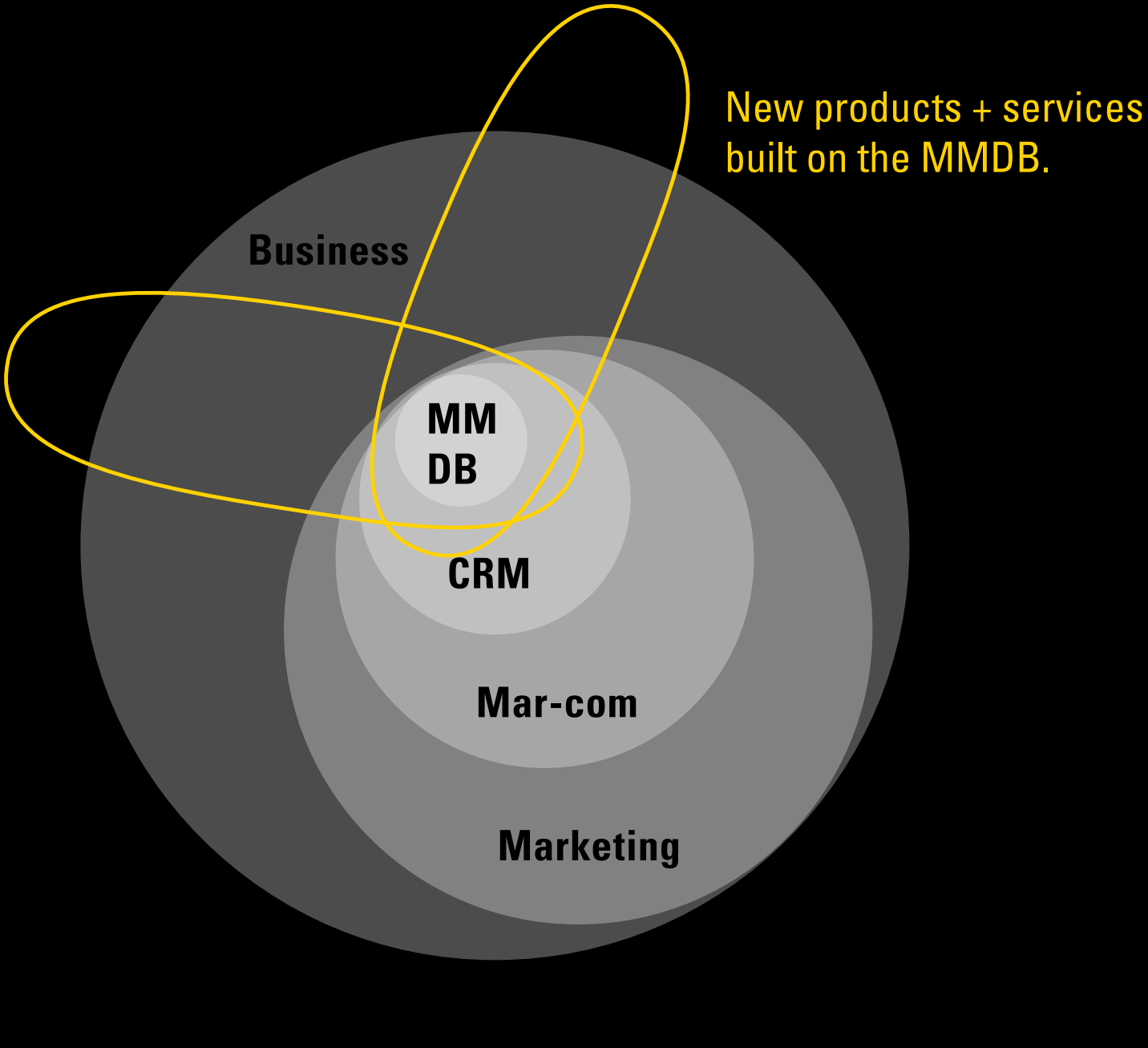
— Evan Williams, founder of Twitter



CRM is now core—you have to know your customer.



Existing model of CRM



Emerging model of CRM

Relevance

The right resources
in the right amounts
at the right time
in the right place

=

Identity

for a person
or team

+

Context

to accomplish
the tasks at hand
without disruption
or loss of flow

Activities take place within contexts.

Physical Contexts

- Who (actors)
- What (resources)
- Where (location)
- When (time)

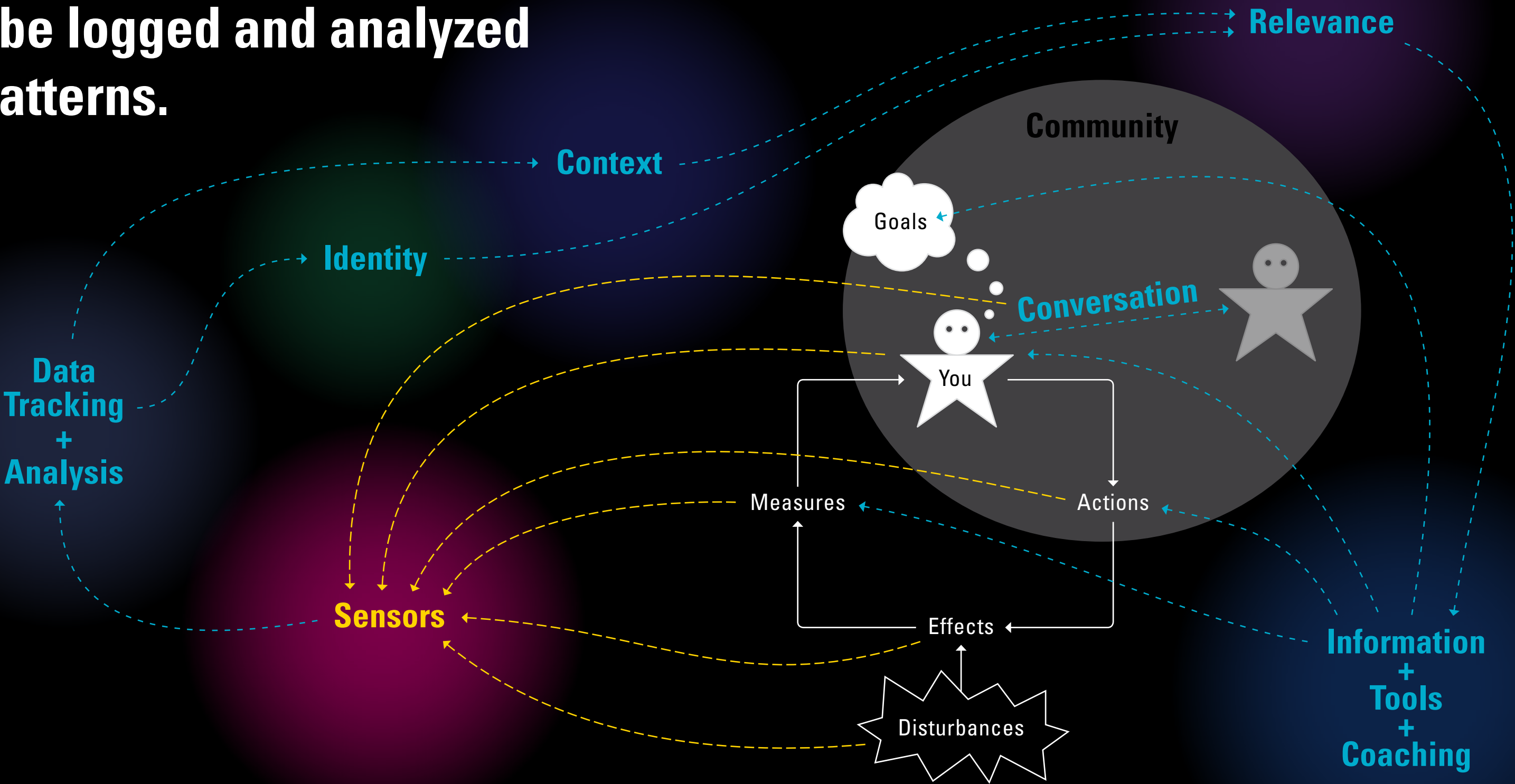
Why
How



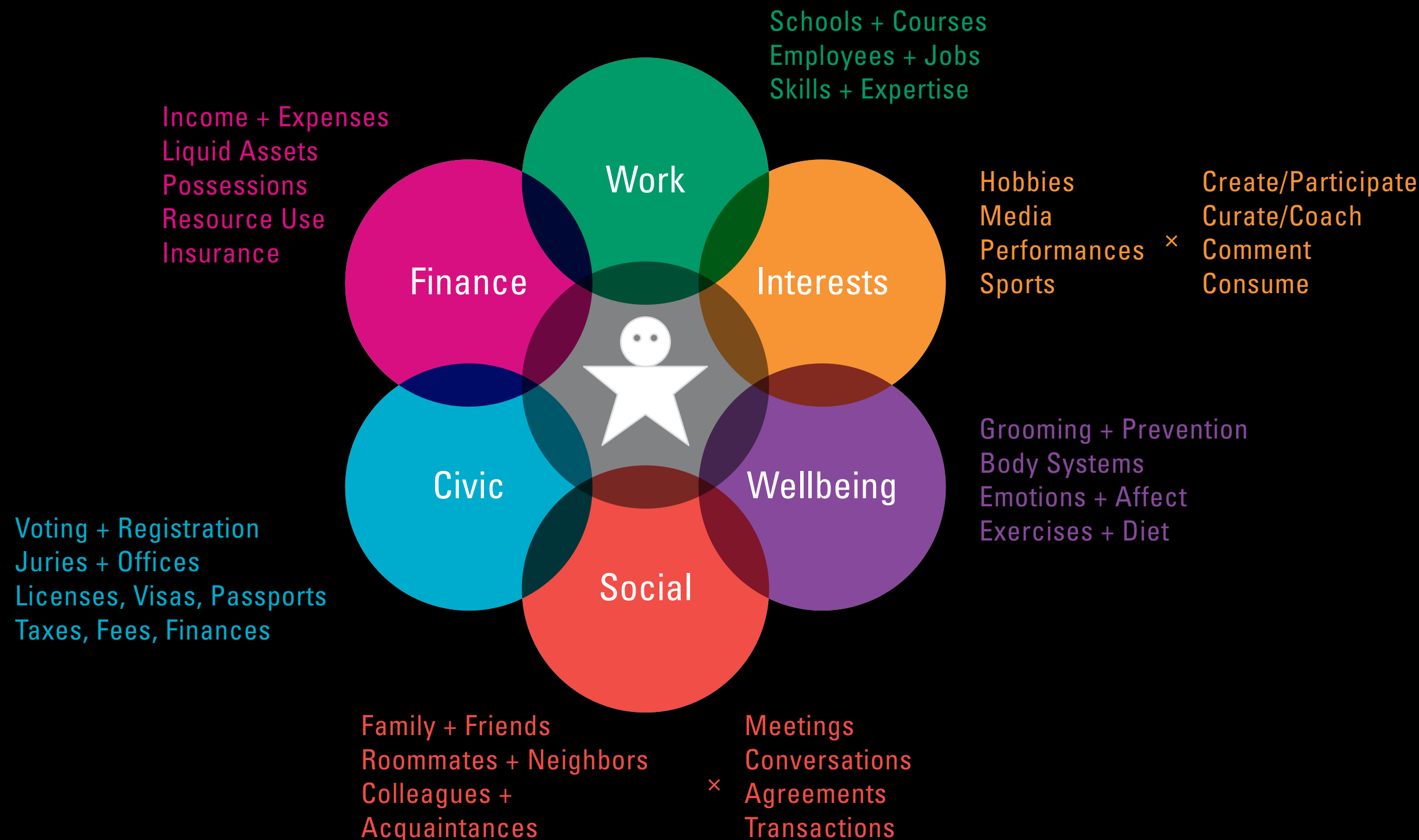
Cultural Contexts (task domains)

- Languages (vocabulary)
- Concepts (knowledge)
- Methods (skills)
- Rules (norms)

Everything we do
will be logged and analyzed
for patterns.



This massive data collection will be organized into a taxonomy of personal identity.



Drilling into a sub-categories shows the potential for detail.



Grooming + Prevention

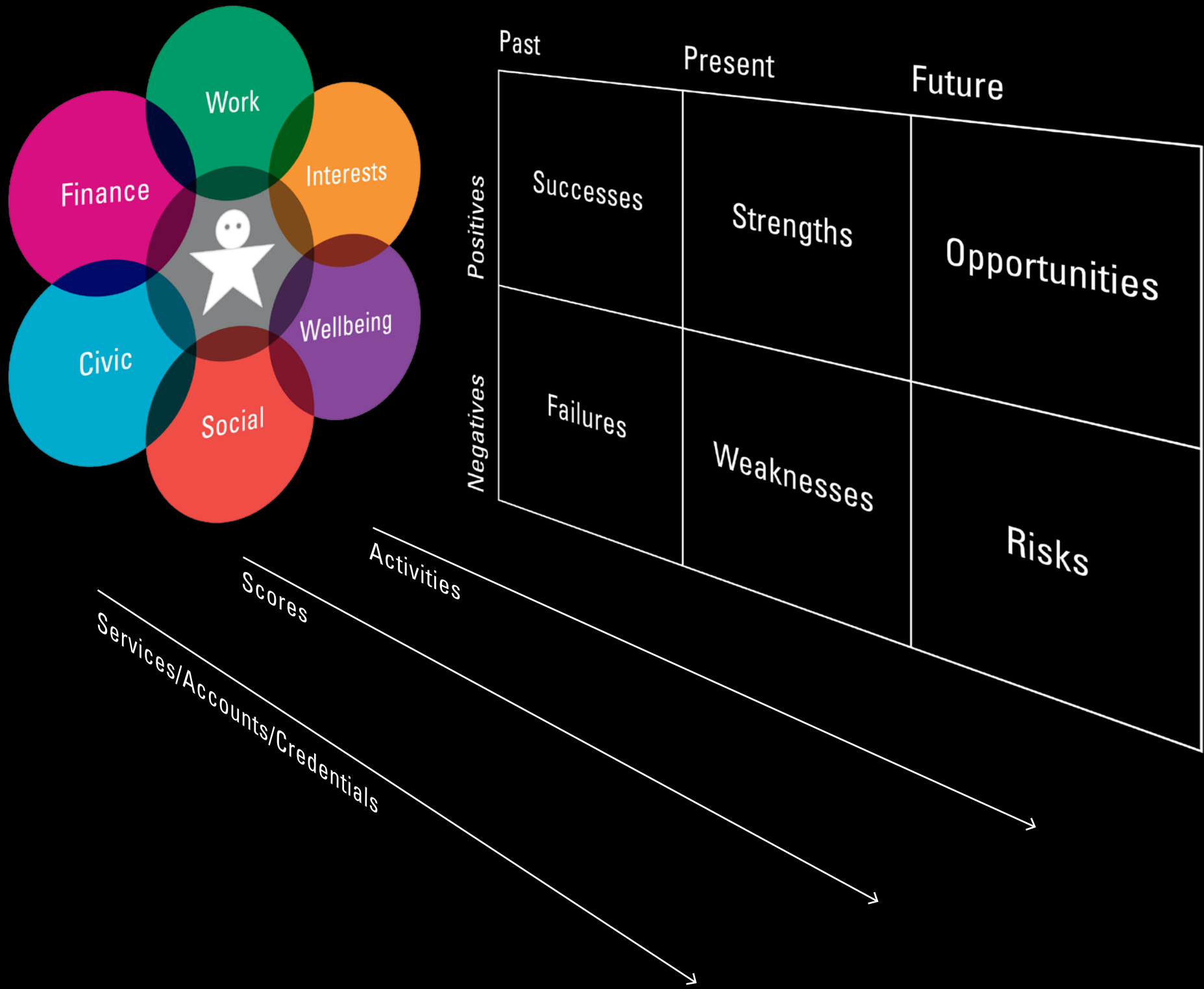
Body Systems

Emotions + Affect

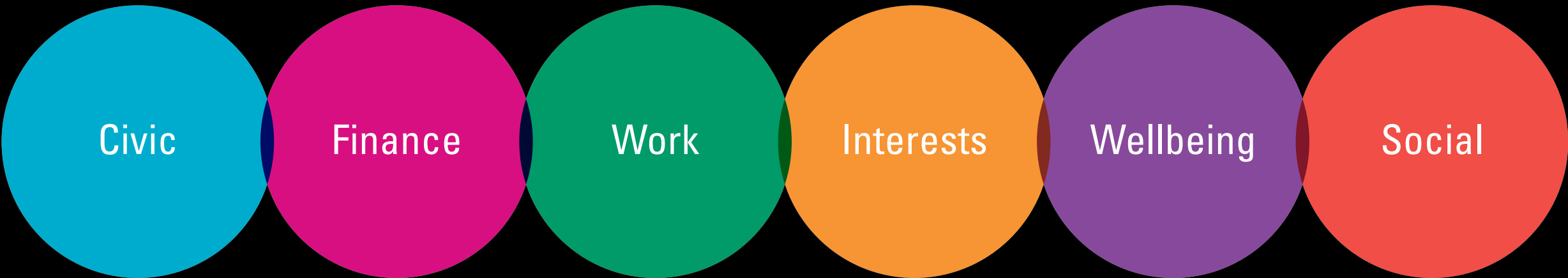
Exercises + Diet

Pituitary gland		(hydrocortisone)	Normal, PM: 3–17 µg/dL
		17 Hydroxyprogesterone * See also: ovaries	Man, normal: .06–3 mg/L Woman (follicular phase), normal: .2–1 mg/L
		Angiotensin-converting enzyme (ACE)	Normal: 23–57 U/L
	Growth hormone	At peak: 5–45 ng/mL Between peaks: < 5 ng/mL	
	Follicle-stimulating hormone (FSH)	Prepubertal: < 1 – 3 IU/L Adult male: 1–8 IU/L Adult female (follicular & luteal phase): 1–11 IU/L Adult female (ovulation): 6–26 IU/L Post-menopausal female: 30–118 IU/L	
		Adrenocorticotrophic hormone (ACTH)	Normal: 20–80 pg/mL
		Prolactin	Female, normal: < 20 ng/mL Male, normal: < 15 ng/mL
	Cardiovascular	Blood	
		Blood Glucose	Hypoglycemia: < 3 mmol/l Normal: 3.6–5.8 mmol/l Normal, post-meal: <10 mmol/l Hyperglycemia: > 7 mmol/l (chronicly)
		Luteinizing hormone (LH)	Female (peak): 20–75 IU/L emale (post-menopausal): 15–60 IU/L
		Insulin absorption	-
		Plasma osmolality	Normal: 275–295 mOsm/kg
	Blood: lipids	Total cholesterol	Desirable: < 200

Identity changes over time.



The space of possible services is sparsely populated.



Goals/Tasks/Queues

- Opportunities
- Risks

Kickstarter

Motif

Netflix Queue
Amazon Wish List
Air BNB

Status / Alerts

- Strengths
- Weaknesses

Online Wallets
Square

Facebook

Records

- Successes
- Failures

Mint

Linkedin Resume

Evernote
Amazon Purchases

EMR/PHR

Ideally, you control your data and vendor relationships. CRM gives way to VRM.

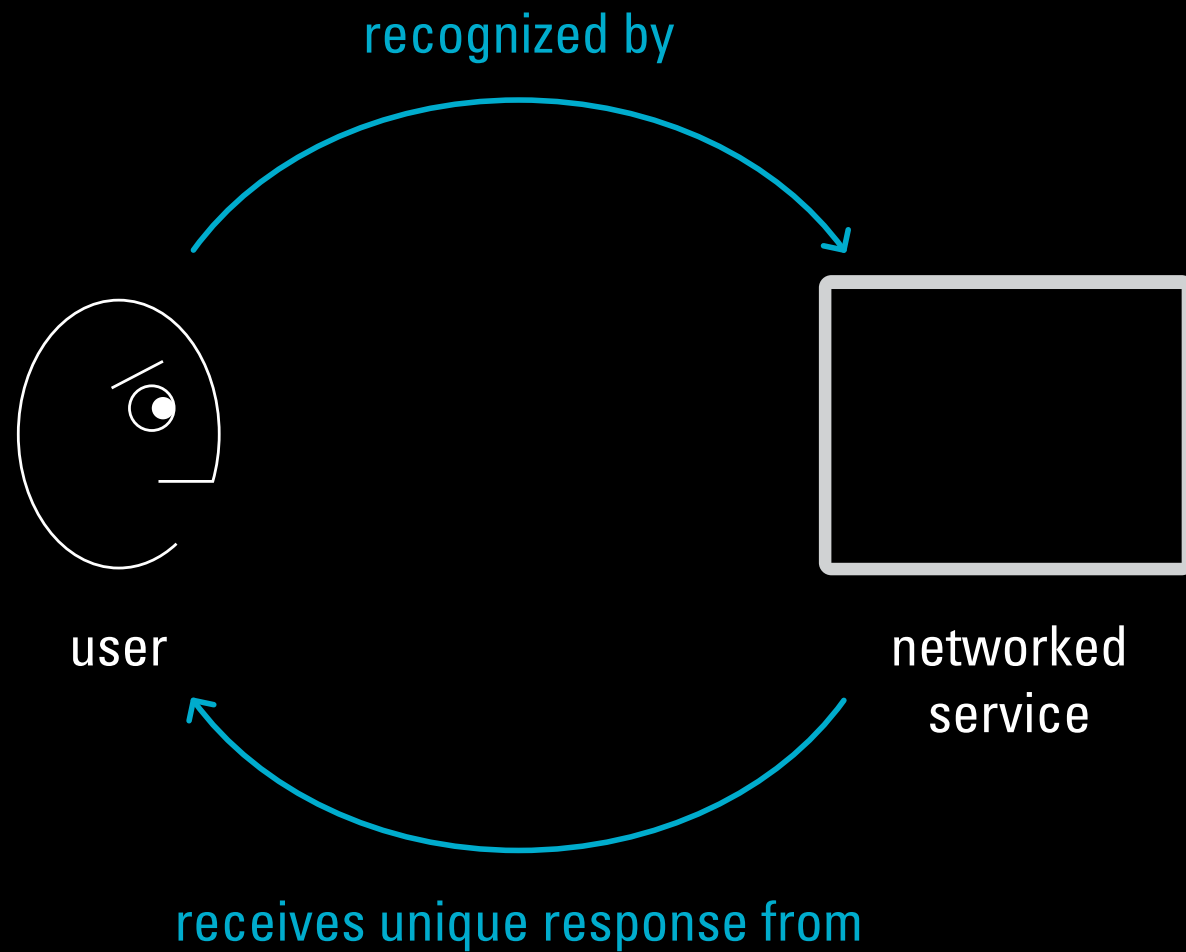
“In the not-too-distant future, you will be able, for example, to change your contact information with many vendors at once, rather than many times, over and over, at many different websites. You will declare your own policies, preferences and terms of engagement—and do it in ways that can be automated both for you and the companies you engage.”

— Doc Searls, “The Customer As A God,” WSJ

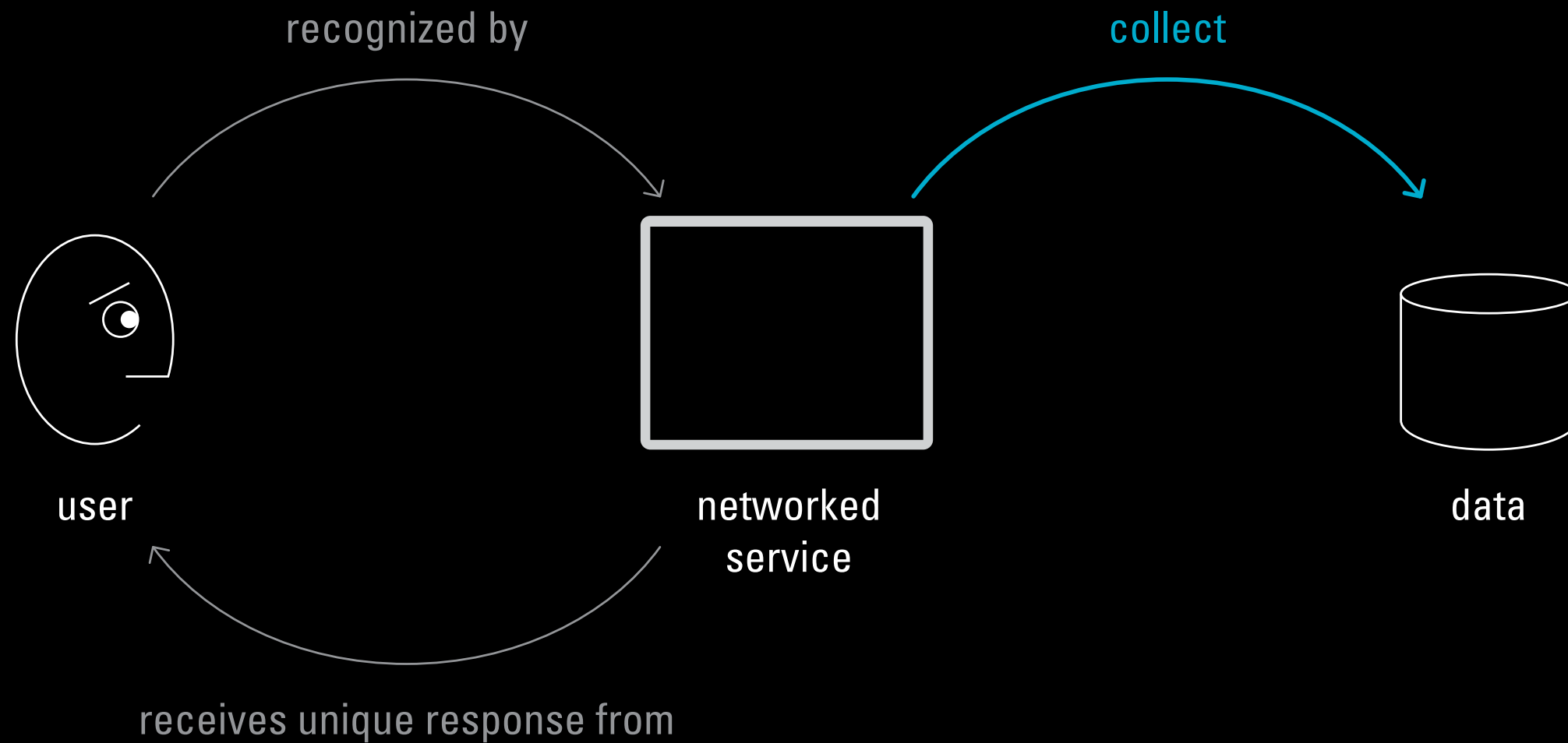


What does this mean
for developers
and product managers?

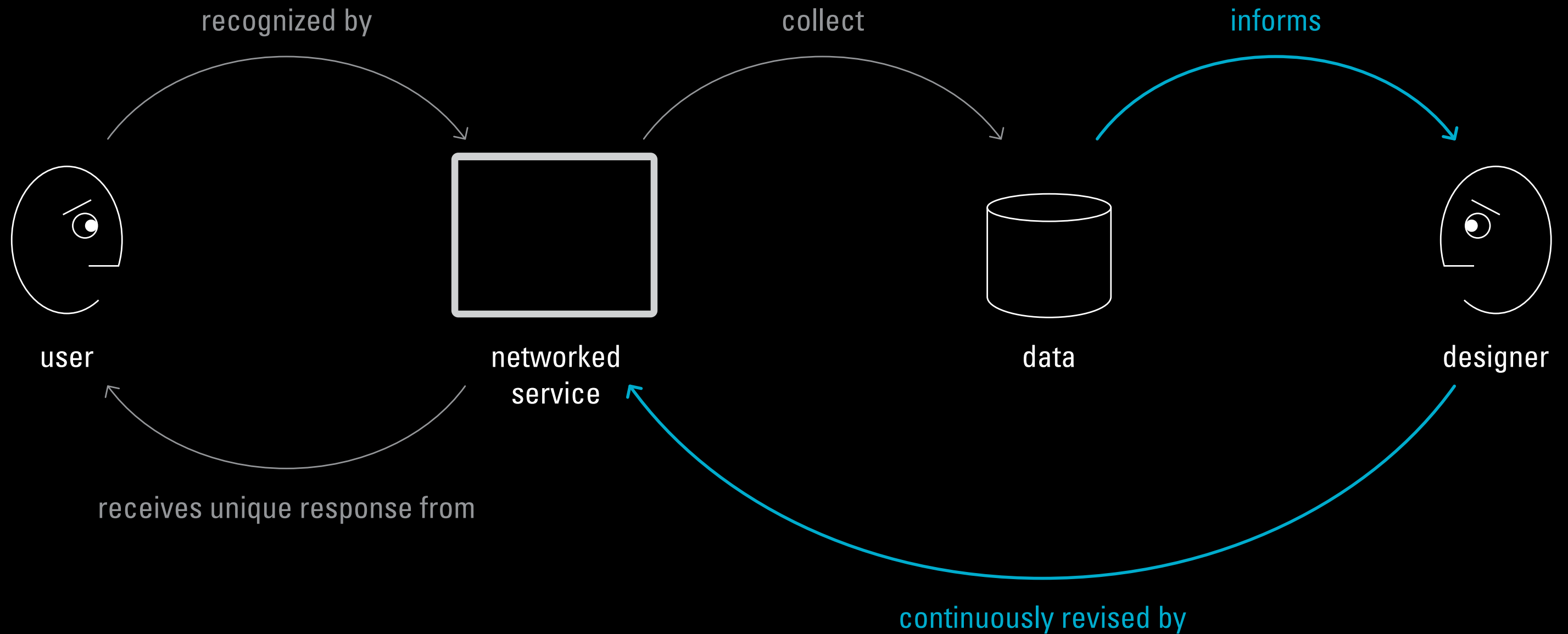
Networked platforms can recognize their users and respond uniquely.



Networked platforms collect information as a natural part of operating.



Networked platforms change continuously.

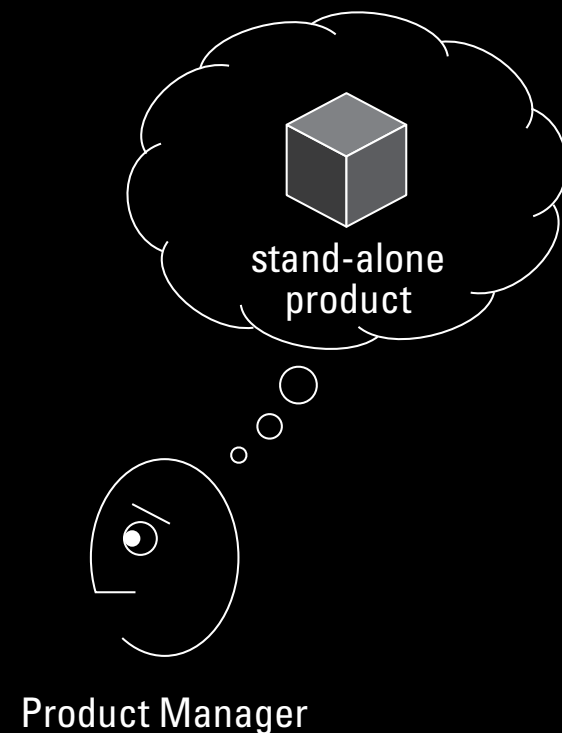


*“... designing networked services
requires a new way of thinking
about a product
and its development.”*

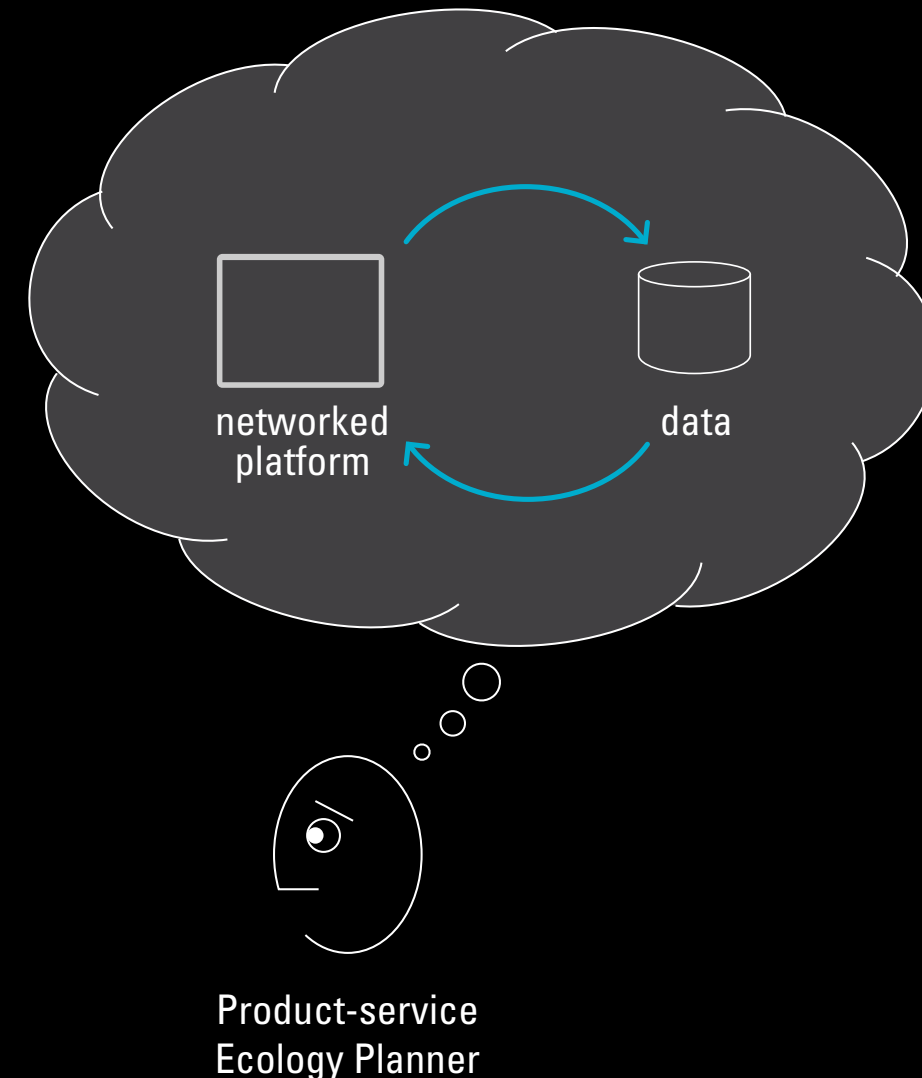
— Tim Misner, Oracle Software Architect



**“... internal discussion changes
from
‘what features or quality level
do we think our products need?’**

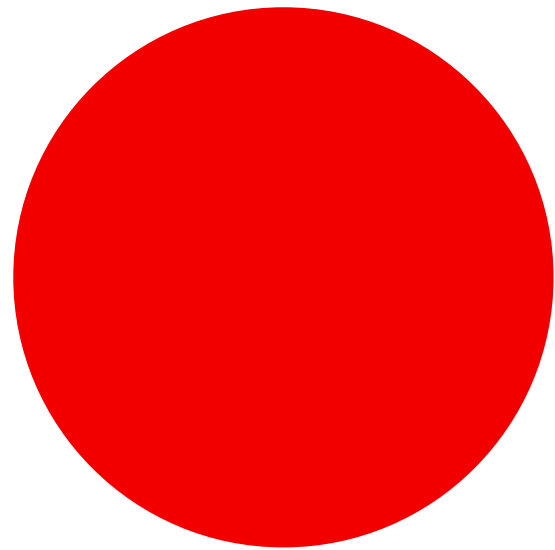


**to
‘what data can we collect
about our features and quality?’”**



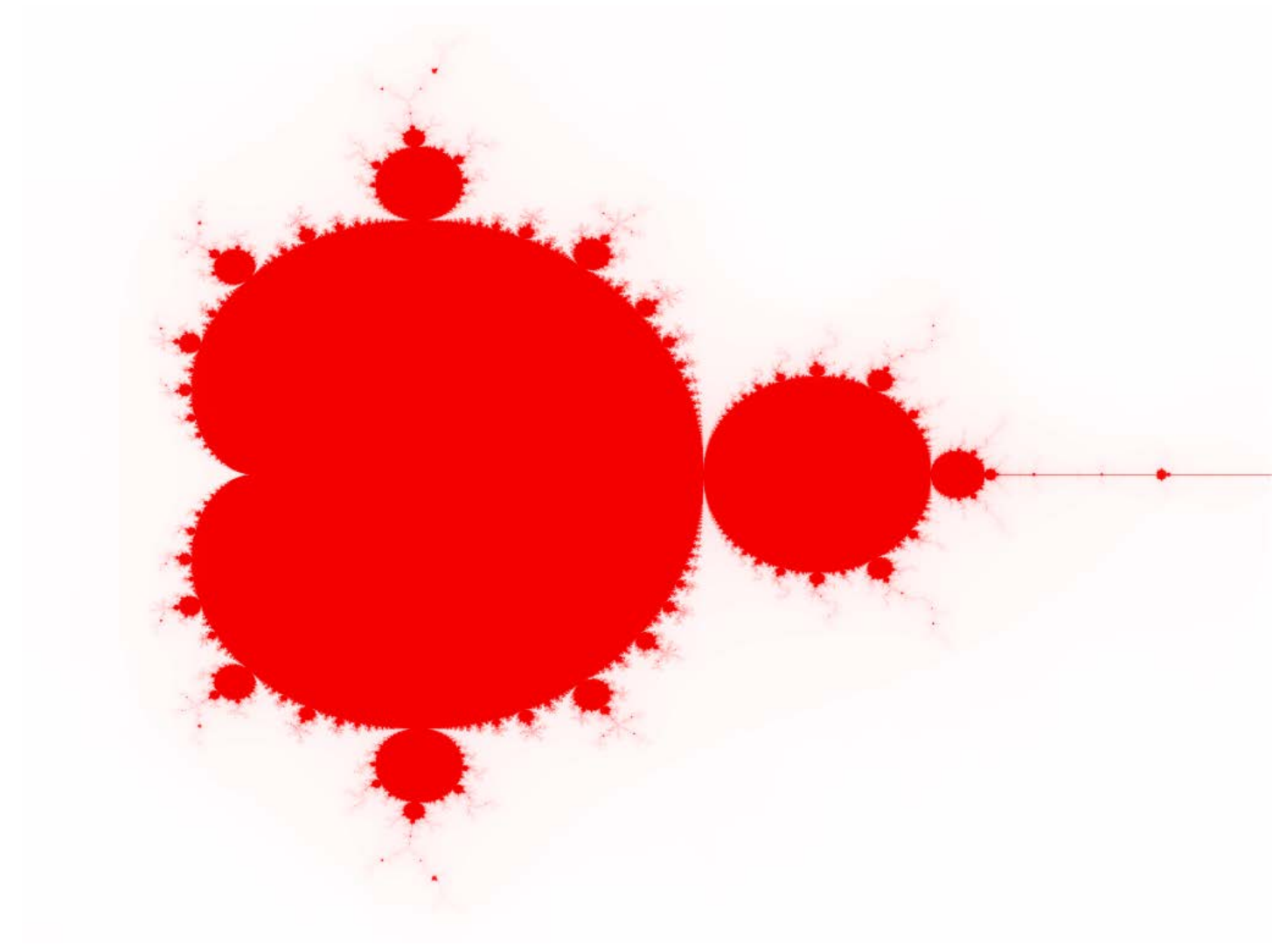
from

Perfecting



to

Growing



from

**Building
stand-alone
products**



Microsoft Word

to

**Creating
conditions
in which
ecologies
can flourish**



Google Docs

Special thanks to

Daniel Bennett

Kathleen Held

Mona Vernon

Robin Bahr

Eunki Chung

Jodi Forlizzi

Michael Gallagher

Marco Huerta

Tim Misner

Paul Pangaro

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Presentation posted at

www.dubberly.com/presentations/Networked_Platform.pdf