

DESIGN + INNOVATION: DRIVERS OF THE BIOECONOMY

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Life Sciences Chief Strategist
IDEO
@RodrigoATCG

IN CONCLUSION...

**1 // THE MOST CRITICAL SHIFT IN BUSINESS STRATEGY
IN THE NEXT DECADES IS BEING FUELED BY THE
DISCIPLINE OF DESIGN**

**2 // THE CONCEPT OF BIOECONOMY WILL BE OBSOLETE IN
THE NEXT FIFTY YEARS, MAYBE EVEN LESS**





> OPEN SOURCE

> DESIGN

> COMPUTER SCIENCE + BIOLOGY

BUSINESS STRATEGY EVOLUTION

1960 - 1970s

1980

1990

~2000+

~2010+

**LEAN STARTUP
DESIGN THINKING
EXPERIENCE**

**NETWORKS?
ADAPTABILITY?
PEOPLE**

CAPABILITIES

PORTFOLIO

PRICE

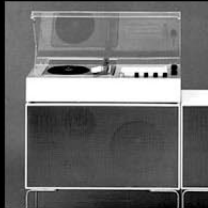
***HOW IS THE CONTEXT IN WHICH
PRODUCTS & SERVICES ARE DESIGNED
AND MADE CHANGING?***



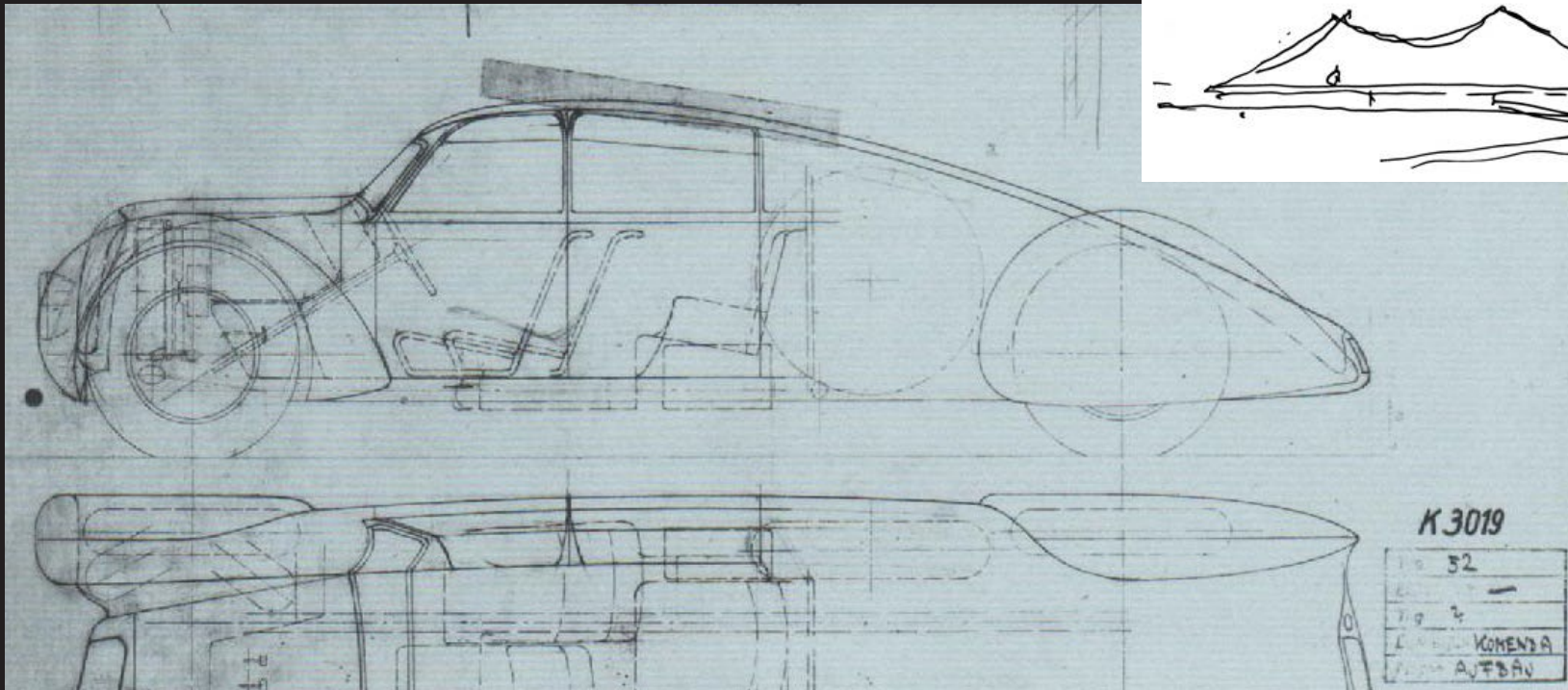
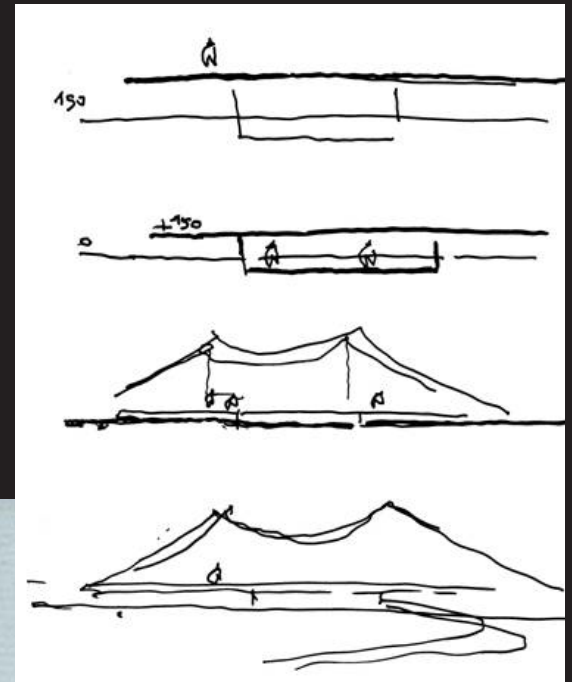


Braun

Apple



PART OF THE MAGIC...



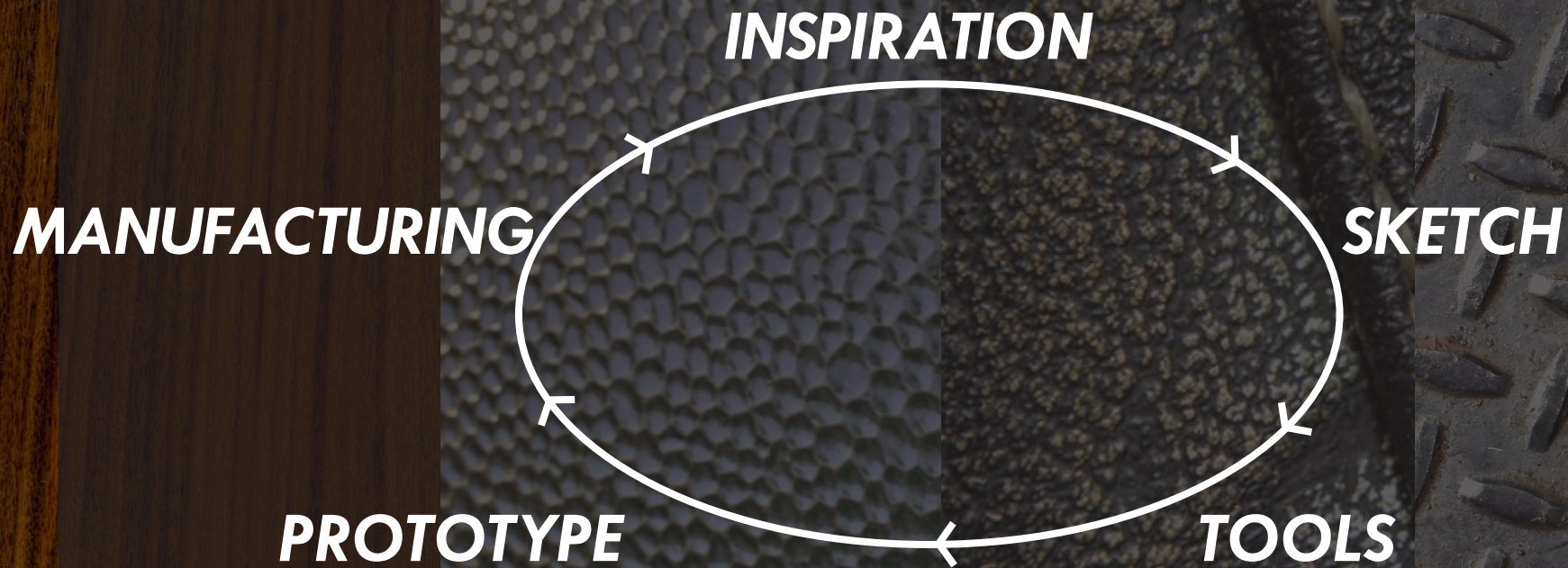
BUT ALSO...



BUT ALSO...

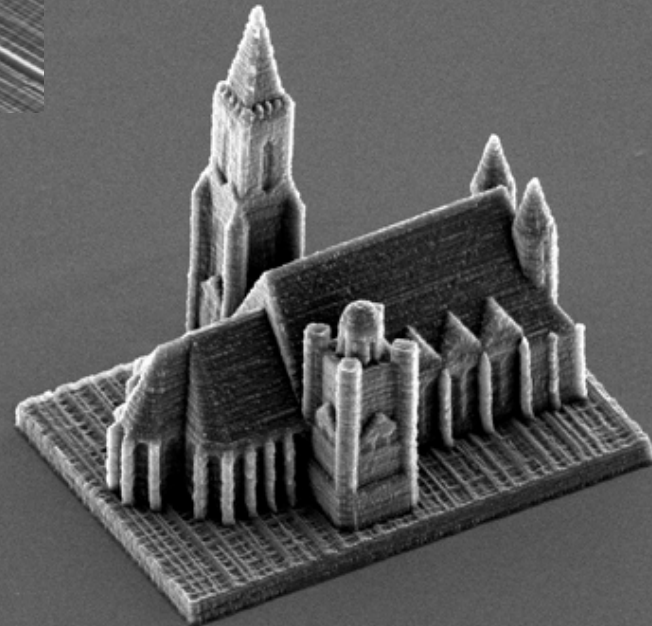
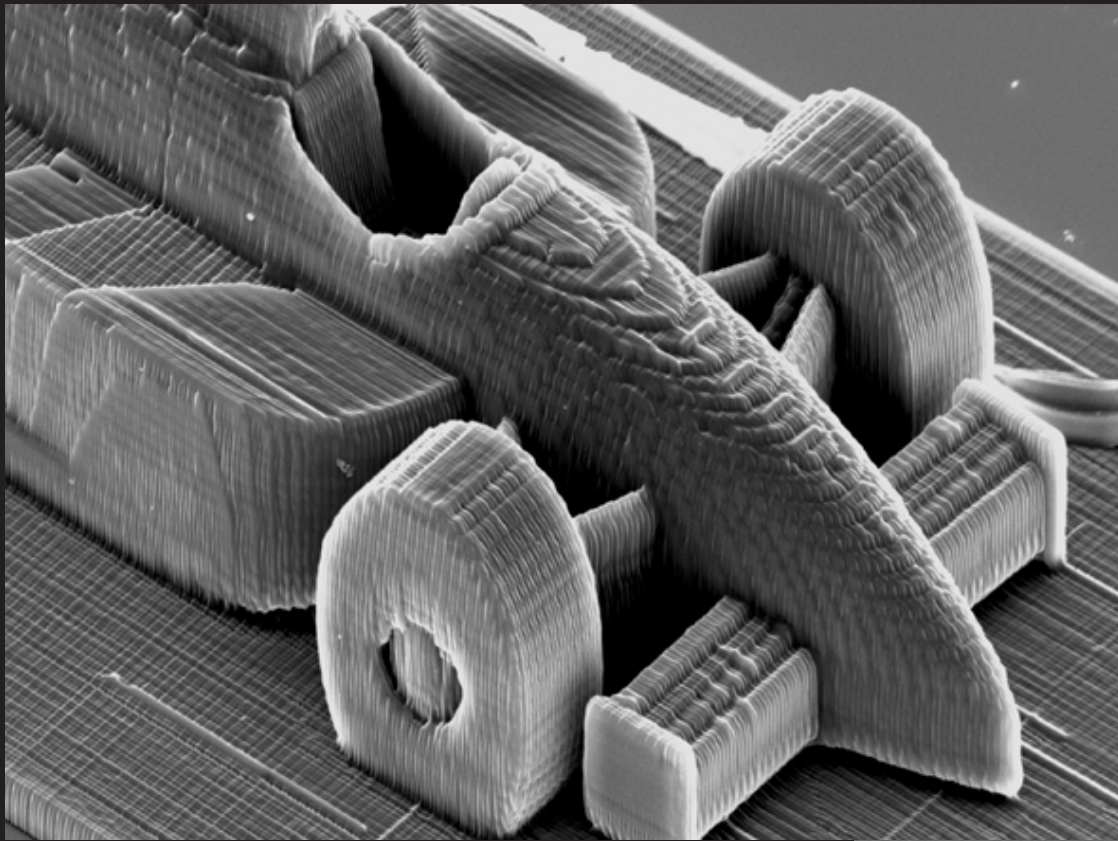


DESIGN & INNOVATION PROCESS ~1960 IS ANALOG









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iris van herpen, daniel widrig



GONE TO MARKET*

2010 2011

3M *Fitrete Water Station* water filtration system
ACER *STREAM* mobile phone
BLOOM ENERGY fuel cell power system redesign
BOSTON BEER Samuel Adams tap handle
CALIFORNIA COLLEGE OF THE ARTS *Project Form* strategic plan
CHANGI GENERAL HOSPITAL patient experience
CITIBANK digital tool for money saving
DUBAI DEPARTMENT OF ECONOMIC DEVELOPMENT service redesign
EXPERIENCEPOINT *Design Thinker* innovation workshop
FORD *MyFord Touch* car dashboard interface
IDEO *Balloonimals Pop!* mobile app
IDEO *IDEO.org* nonprofit
IDEO *Method Card* mobile app
IDEO *OpenIDEO* open innovation platform
IDEO *ShopWell* healthy eating digital tools
IDEO/FISHER-PRICE educational mobile apps for kids (3)
IDEO/LITTLE KIDS *Big Bubble Friends* toy
IDEO/SCHOLASTIC *The Klutz Book of Inventions*
IDEO/SESAME STREET *Elmo's Monster Maker* mobile app
JAMIE OLIVER *Cooking & Company* workplace wellness program
JAMIE OLIVER *Food Revolution* toolkit
KOBO *WiFi eReader*
LARS HINRICHS *HackFwd* tech startup incubator
LG HAUSYS ventilated windows in Korean market
MEMORIAL SLOAN-KETTERING CANCER CENTER design strategy
MOXIE Spaces knowledge-sharing platform
NEW YORK UNIVERSITY Wagner School student experience
ODENSE KOMMUNE public meeting space
QUISILVER *Cypher Massive Performance Series Men's Boardshorts*
RAVENSBURGER *ipotoi* digital/audio learning system, *Sensors* puzzles
RBRC *Call2recycle* battery collection boxes
REDBOX communication and user interface redesign
SAMSUNG *Continuum* Android smartphone
SAMSUNG *iFunction camera lens* digital system
SAMSUNG CHEIL *Bean Pole* retail store experience design
SAPPI FINE PAPER *eQ Tool* digital design strategy
SEALY *Embody* brand strategy and product design
SONY/WWF *Open Planet Ideas* environmental innovation challenge
SOUTHERN WATER service design
SSRC *Start!* digital education tool
ST. JOSEPH HEALTH SYSTEM *Spotlighting* patient experience toolkit
STEELCASE *Node* classroom chair design
STEELCASE *RoomWizard II* product and digital design
TCL *XII* television
THE NATIONAL CAMPAIGN *Bedsider* birth control support network
TOKYO DESIGN WEEK *Future Present* exhibit
US GREEN BUILDING COUNCIL *biomimicry charette*
VISA *Rightclick* digital shopping tool
WESTERN DIGITAL *My Book* mobile digital storage
+ DIGITAL AND INTERACTION DESIGN FOR A MAJOR UNIVERSITY (2)
+ DIGITAL COLLABORATION TOOLS FOR A MAJOR PHARMACEUTICAL COMPANY
+ PERSONAL FINANCE SITE FOR A MAJOR FINANCIAL SERVICES CORPORATION
+ REDESIGNED PROSPECT EXPERIENCE FOR A MAJOR UNIVERSITY

ALCON *OPTI-FREE LensFacts* mobile app
AMERICAN REFUGEE COMMITTEE *"I Am A Star"* Somalia relief campaign
AT&T 3G MICROCELL wireless signal booster
BALANCED BODY *Allegra 2* pilates reformer
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CAMPBELL'S *Slow Kettle* soups
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CELMATIX brand identity and digital design
CLARK REALTY *Wounded Warrior* veteran home design
COLLIERS AUTOMOTIVE MUSEUM experience design
CONAGRA *Healthy Choice* packaging design
CONAGRA *Orville Redenbacher Pop-Up Bowl* packaging design
CONAGRA *Slim Jim Dare* packaging design
COVIDIEN *LigaSure* small jaw instrument medical product design
COWAY water filtration system
DEL MONTE *Milo's Kitchen* dog treats
ENTREPRENEUR WALK OF FAME experience design
FORD HYFORD MOBILE mobile app
FOTILE kitchen appliances for the Chinese market
GE EDGE digital community design
GE INNOVATION CHALLENGE/SUBROSA mammography experience redesign
GOGO in-flight wireless experience
GSA San Francisco Federal Building Video Wall
HARPER COLLINS PUBLISHERS creative process strategy design
IDEO *Balloonimals 2.0* mobile app
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IDEO/SESAME STREET *Bert's Bag* educational mobile app
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IDEO/SESAME STREET *Rosalita's Jump Count* educational mobile app
IDEO/TECHNO SOURCE *Tetris Link* board game
INTUIT *Quickbooks* customer care experience design
JETBLUE AIRWAYS *Even More* service design
KÄRCHER product design
KIMBERLY CLARK *Healthy Workplace Project* communication strategy
KOBO *Touch eReader*
KOBO *Vox eReader*
LG HAUSYS *Zea Maru* sustainable product and communication design
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LINCOLN CENTER mobile app
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MAYO CLINIC *Healthy Living* space design
PNC *Wealth Insight* financial service tool and digital design
SEALY *Posturepedic* mattress brand strategy and product design
SIEMENS ENTERPRISE COMMUNICATIONS *OpenScape* design guidelines
SOCIAL SECURITY digital tool design
STATE FARM *Next Door* community financial learning space
STEVENSON UNIVERSITY career services experience design
US DEPT OF HEALTH AND HUMAN SERVICES *Gut Check* digital design
WALGREENS in-store community pharmacy experience
WESTERN DIGITAL digital storage suite industrial design language
WESTERN DIGITAL *My Passport* mobile digital storage
+ DIGITAL CAMPUS EXPERIENCE FOR A MAJOR UNIVERSITY

TOTAL

57 TOTAL

52

GONE TO MARKET = Products, services, and experiences launched to the public or used by audiences internal to our clients.

GONE TO MARKET*

2010 2011

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~ 50% are digital products or services

ALL of them developed with digital tools

TOTAL

57 TOTAL

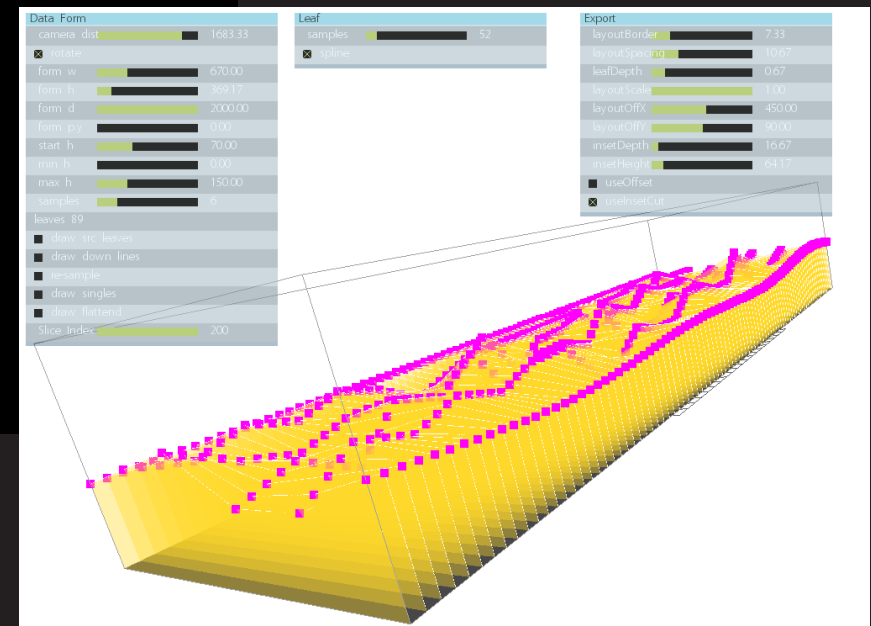
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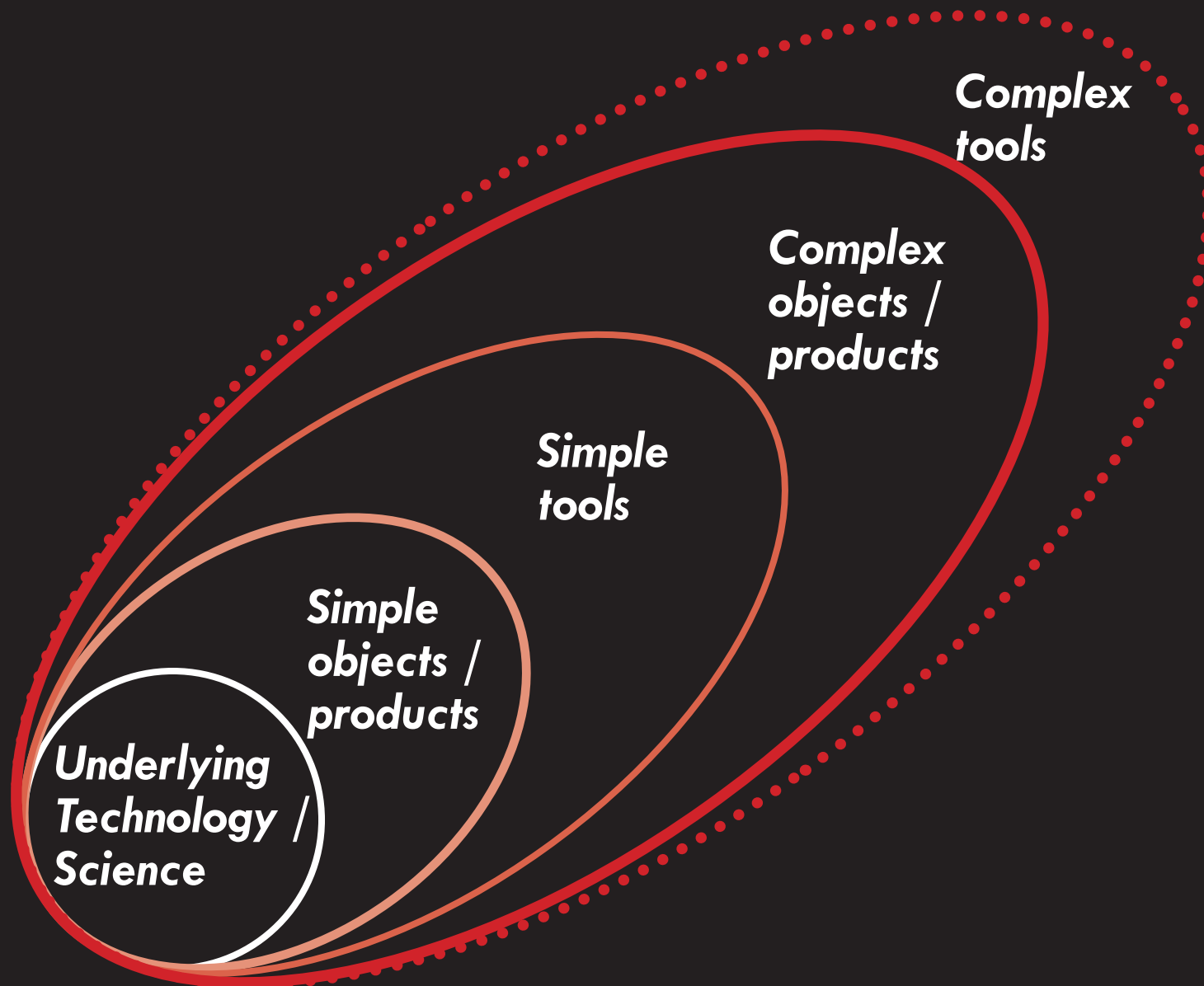
DESIGN & INNOVATION PROCESS ~2012 IS INDISTINGUISHABLY ANALOG + DIGITAL

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// -----  
void update(ofxCvGrayscaleImage &grayInput) {  
  
    if(grayInput.getWidth() != width || grayInput.getHeight() != height) {  
        grayImage.scaleIntoMe(grayInput, CV_INTER_LINEAR);  
    }  
    else {  
        grayImage.setFromPixels(grayInput.getPixels(), width, height);  
    }  
  
    // warping  
    if(bUseWarper) {  
        warpImage.warpIntoMe(grayImage, warpPts, srcPts);  
    }  
    else {  
        warpImage = grayImage;  
    }  
  
    // image masking  
    if(bUseMask) {  
        int color = maskColor;  
        CvPoint* pts[2];  
        pts[0] = new CvPoint[4];  
        pts[1] = new CvPoint[4];  
        int w = width; int h = height;  
  
        pts[0][0].x = 0; pts[0][0].y = 0;  
        pts[0][1].x = w; pts[0][1].y = 0;  
        pts[0][2].x = w; pts[0][2].y = h;  
        pts[0][3].x = 0; pts[0][3].y = h;  
  
        for(int i=0; i<4; i++) {  
            pts[1][i].x = (int)maskPts[i].x;  
            pts[1][i].y = (int)maskPts[i].y;  
        }  
    }  
}
```

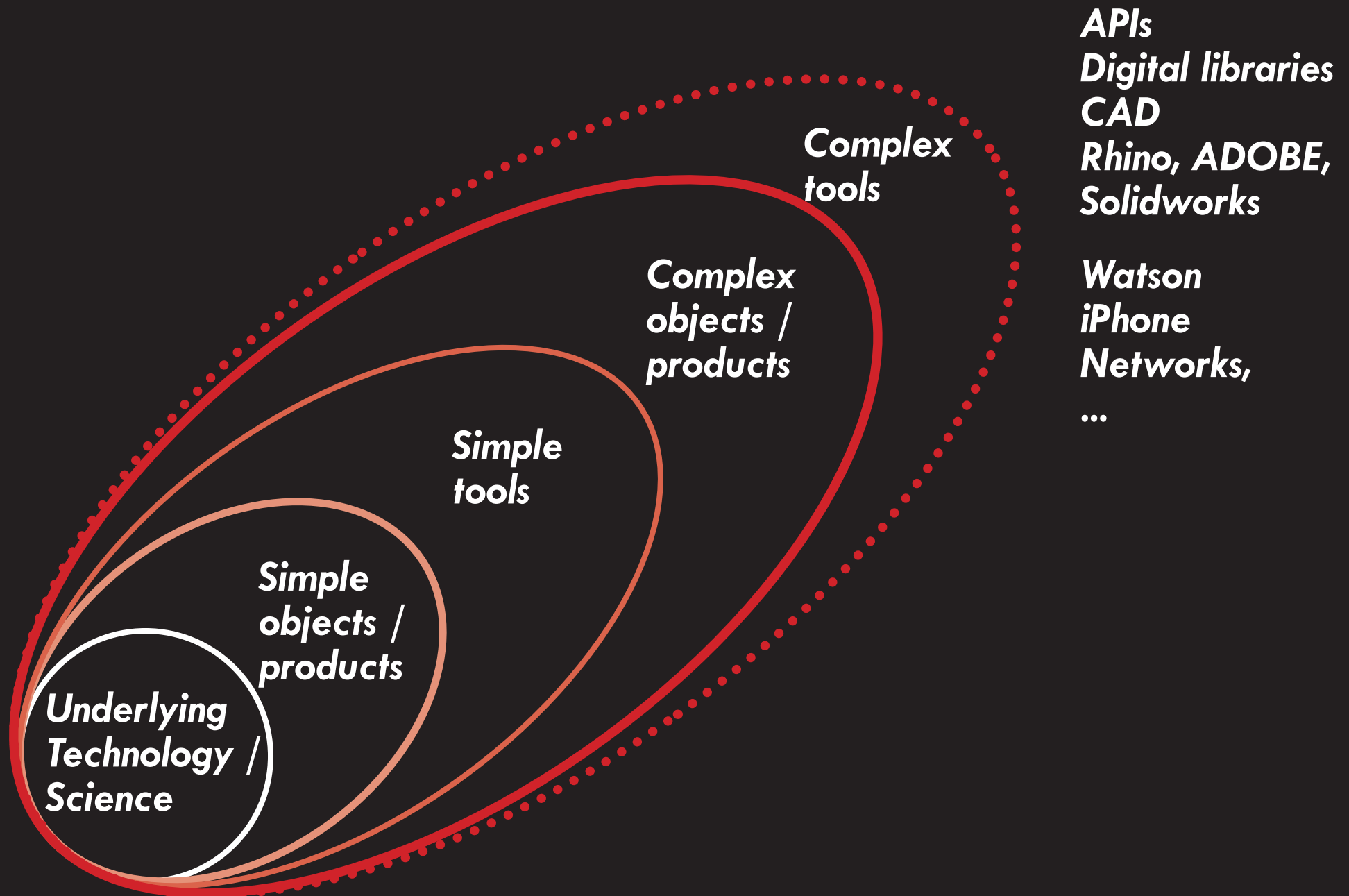
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image(), pts, &nPts, 2,  
or,color,255));
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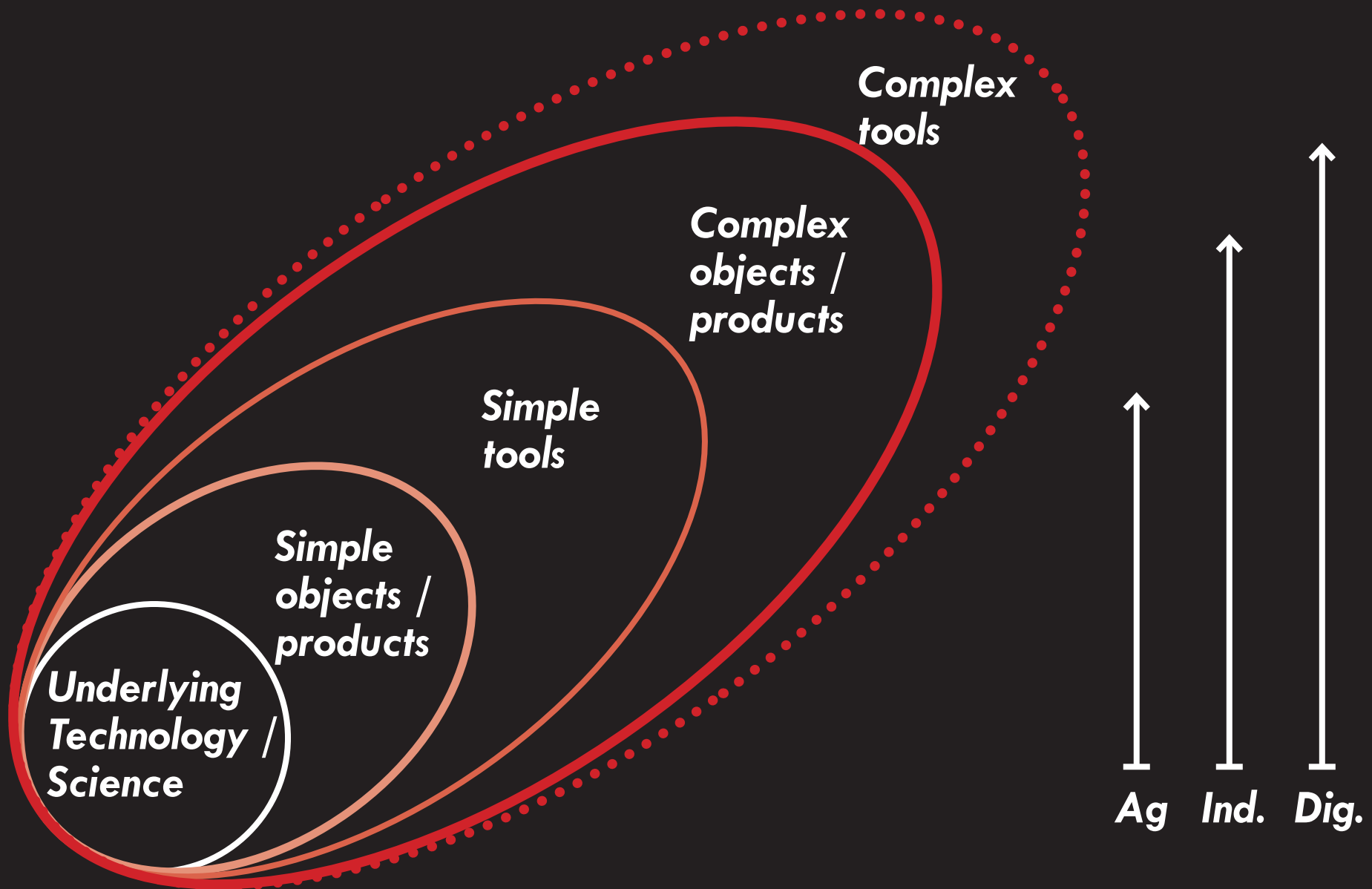
ONGOING PROCESS SINCE THE 1950'S



ONGOING PROCESS SINCE THE 1950'S

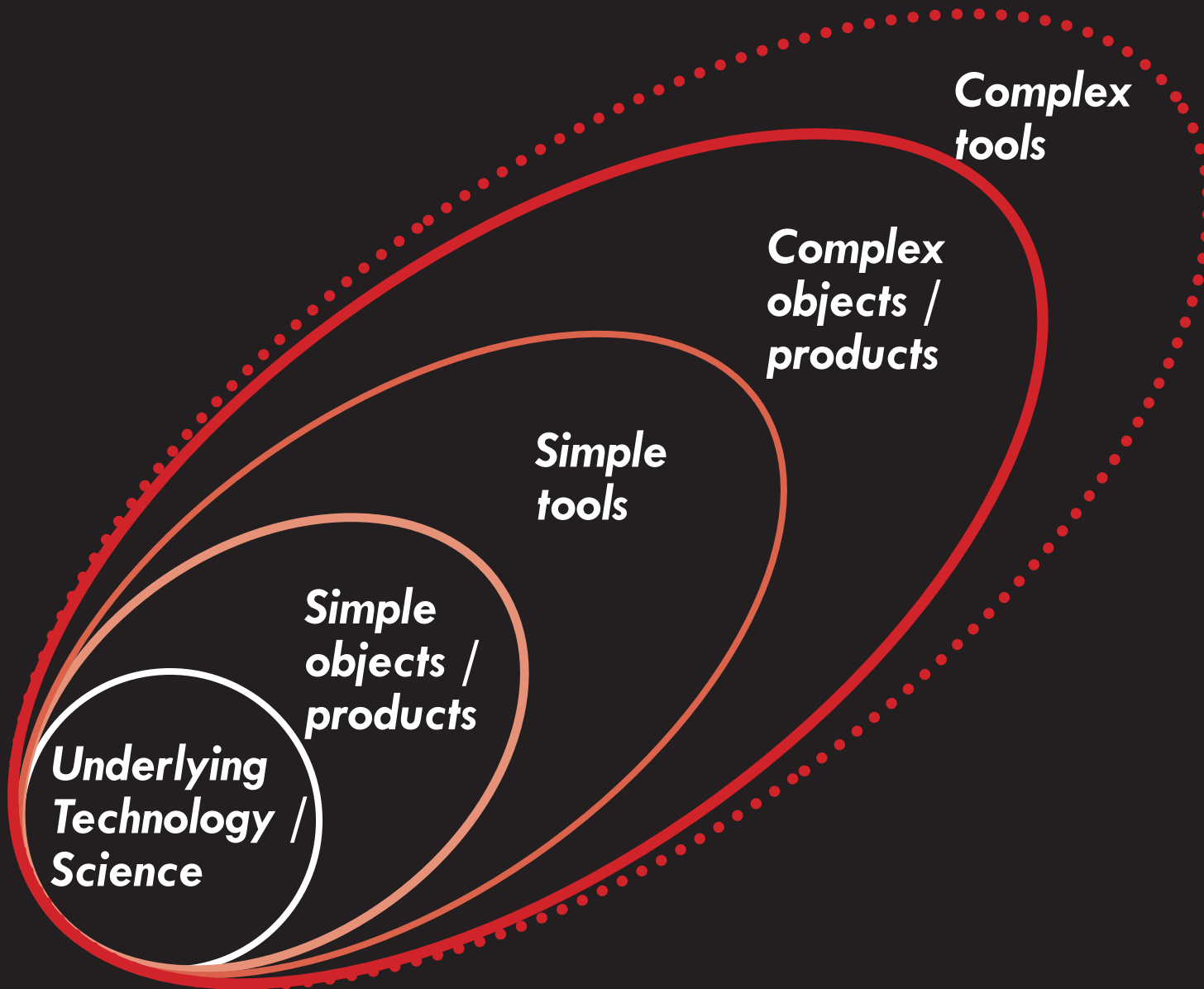


TECH REVOLUTION 'STAGES'

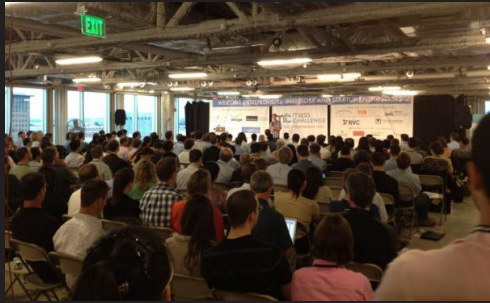


TECH REVOLUTION 'STAGES'

**WHO,
WHERE,
& HOW?**



↑
Dig.



*tech stars, andrew hyde; masschallenge twmg
general assembly, forbes; rocketspace; 21212*

A two-day, family-friendly festival of invention, creativity and resourcefulness, and a celebration of the Maker movement

Maker Faire

ATTEND CHECK OUT THE PROGRAM HOW TO PARTICIPATE IN THE MEDIA

World Maker Faire Program New York 2012

This year's program is jam-packed with fun interactive exhibits and presentations. To plan your time at Maker Faire, check out the schedule below, download the [printed program guide](#), view [a map of the Event Center](#), and get the [app for your smartphone](#) (please note the app will update to accommodate last-minute changes). To learn more about each exhibit and the makers behind all the ingenuity, visit our [Meet the Makers](#) page.



Program Guide



View the Map



Download the App



Meet the Makers



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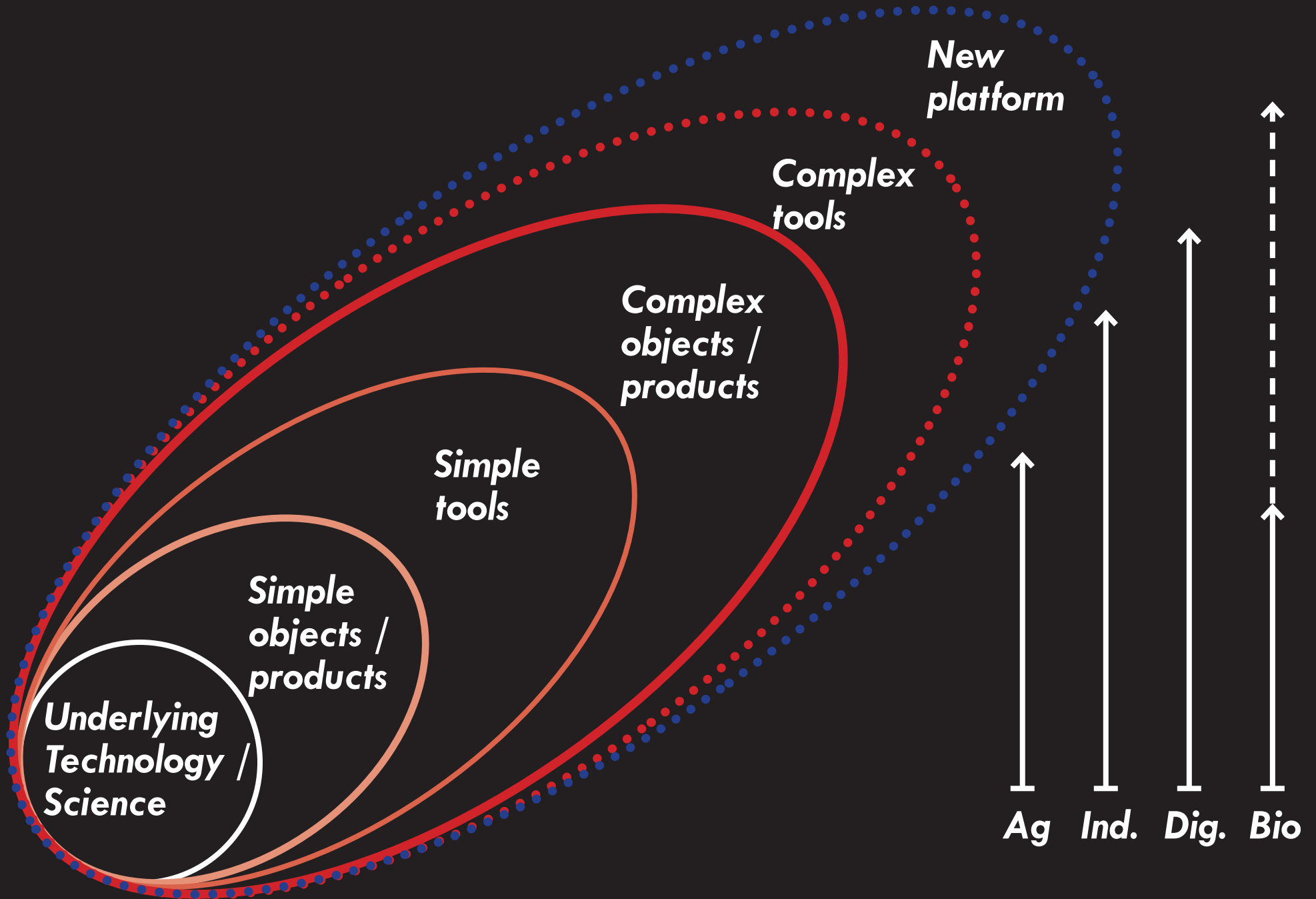
Maker Faire Sponsors



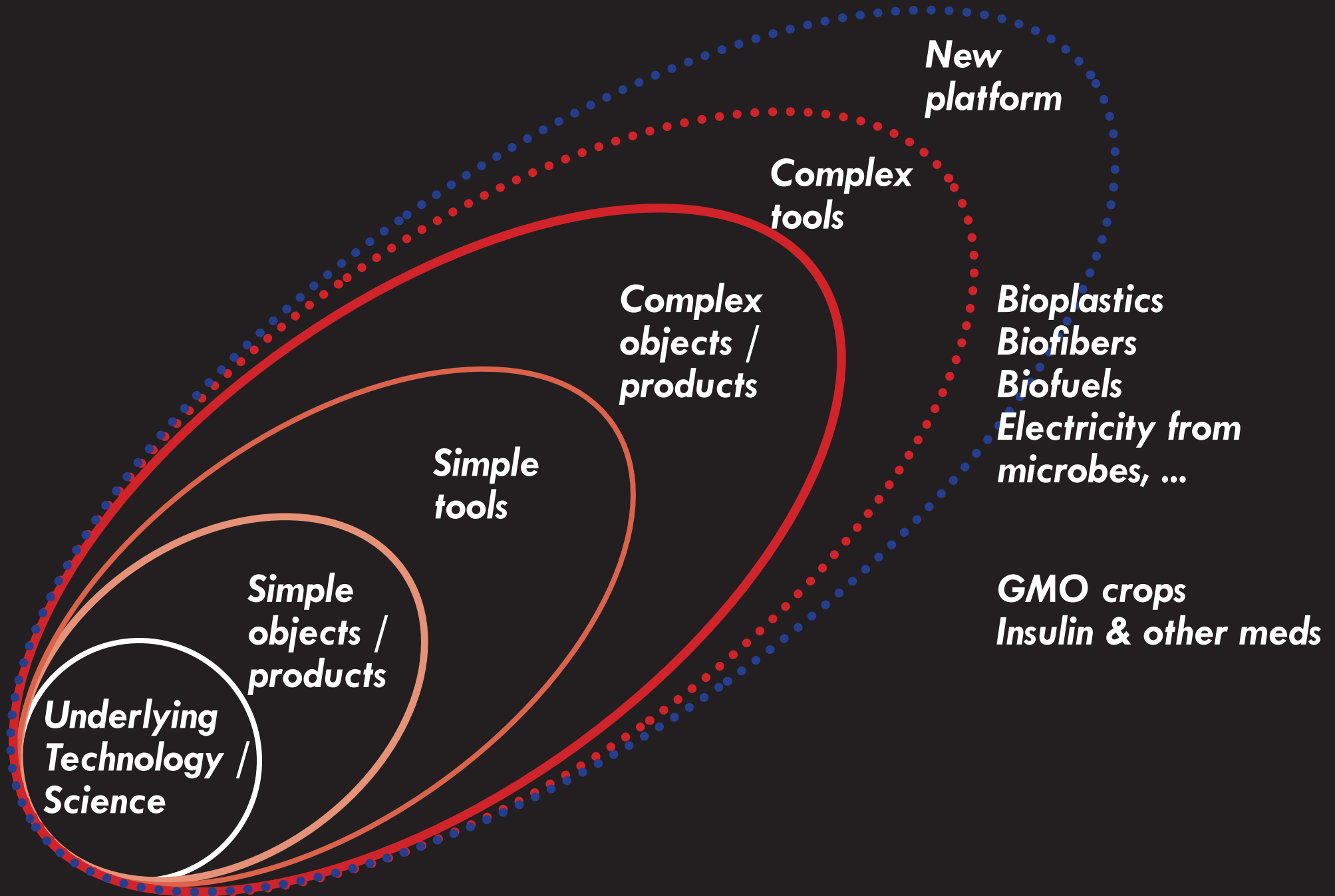
see what Delta can do™



SO WHERE ARE WE IN THE BIOREVOLUTION?



SO WHERE ARE WE IN THE BIOREVOLUTION?

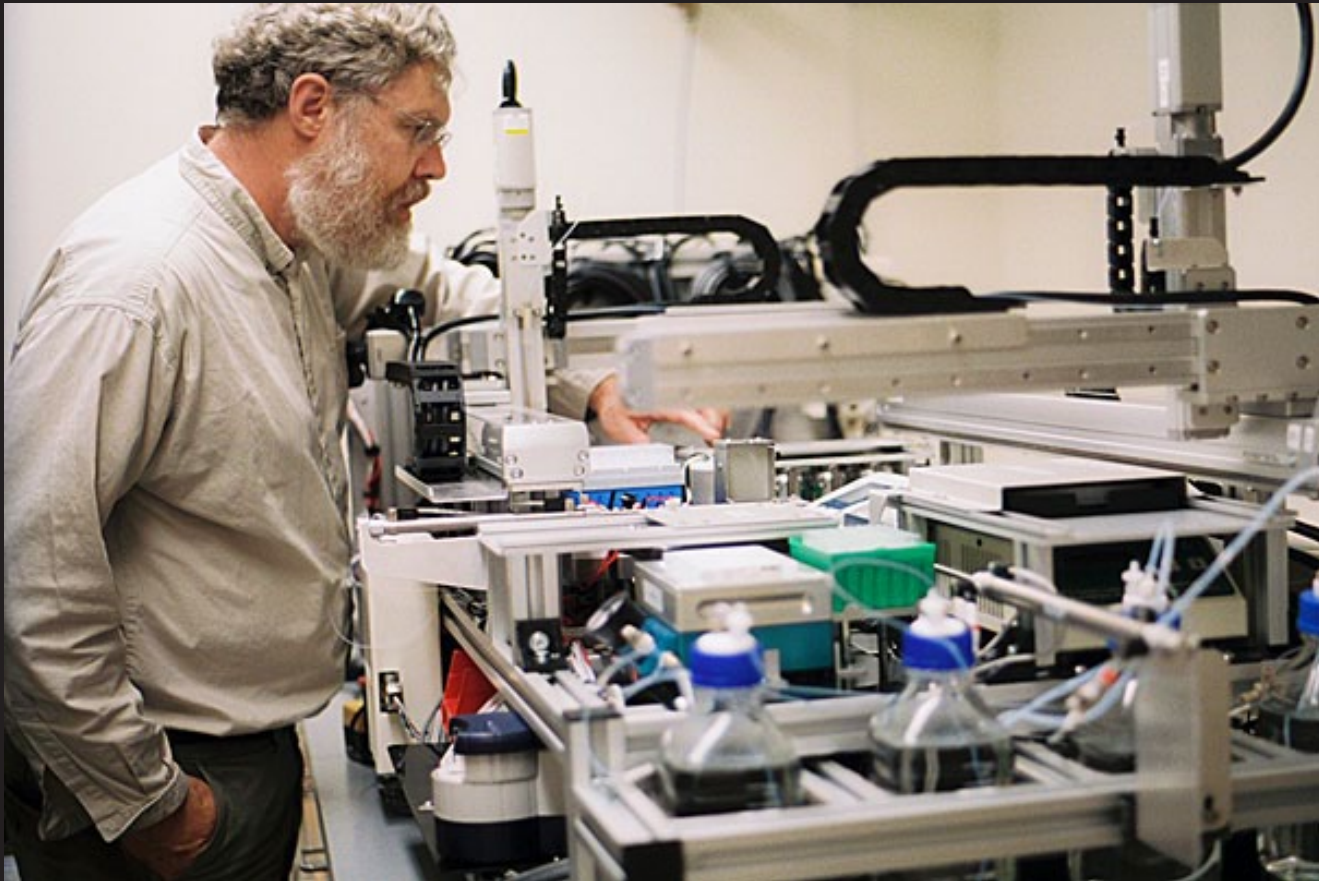


// WHO IS DOING THIS STUFF?

// WHAT TYPES OF THINGS ARE BEING DONE?

// WHERE AND HOW DO I PLAY?

**and yes, why will the bioeconomy
become obsolete?**

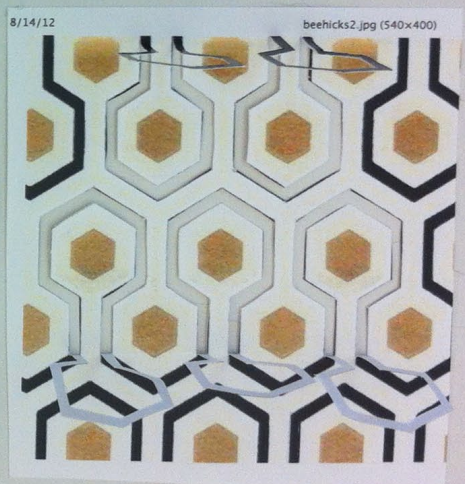
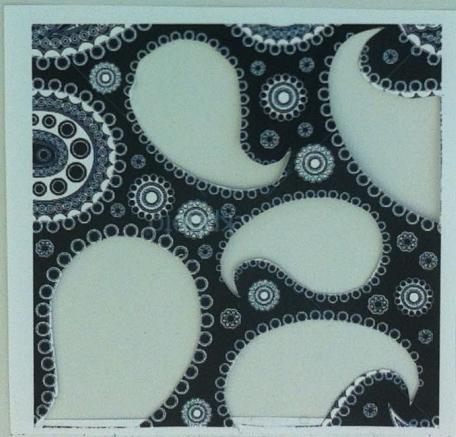


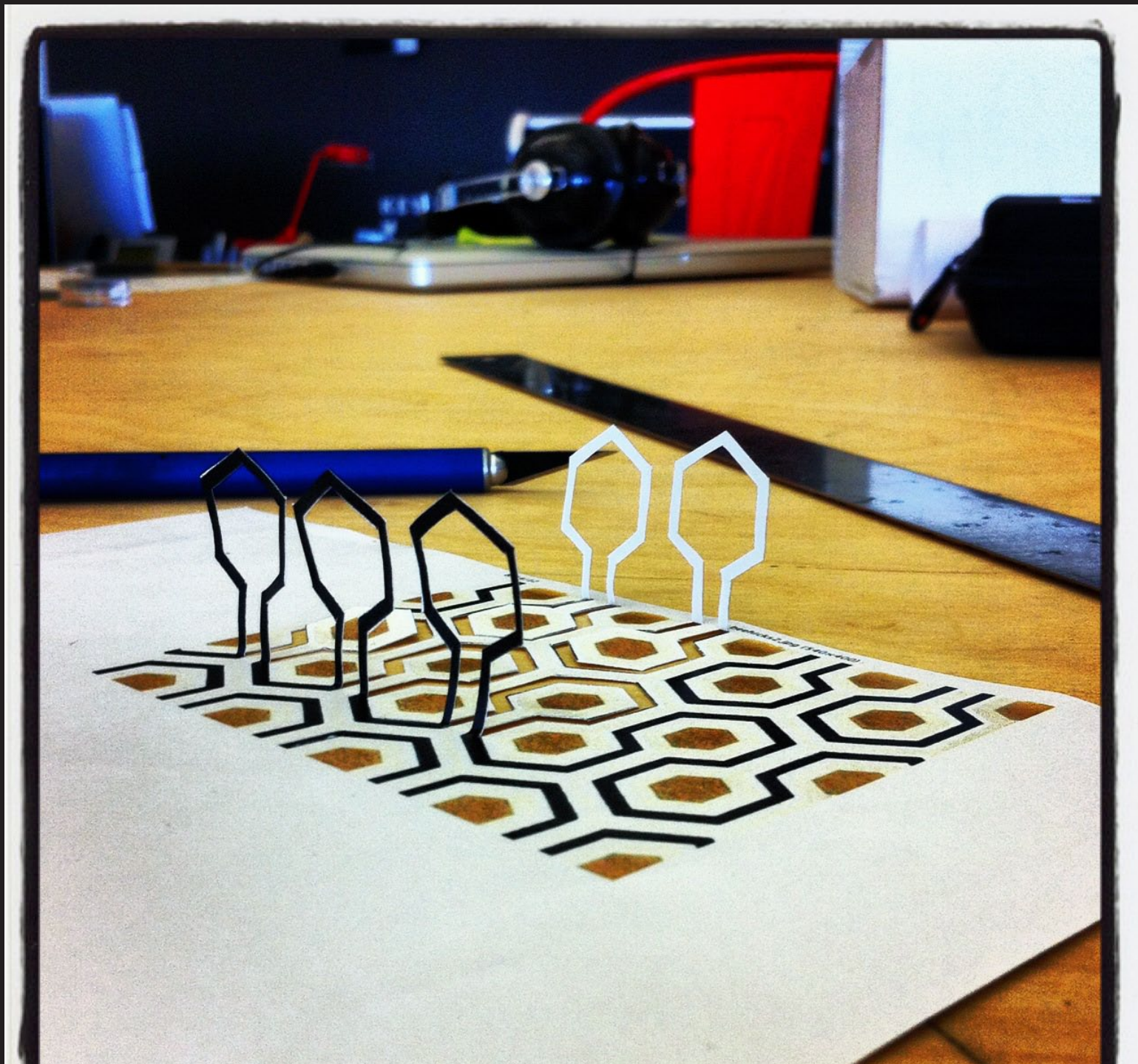
george church at his lab

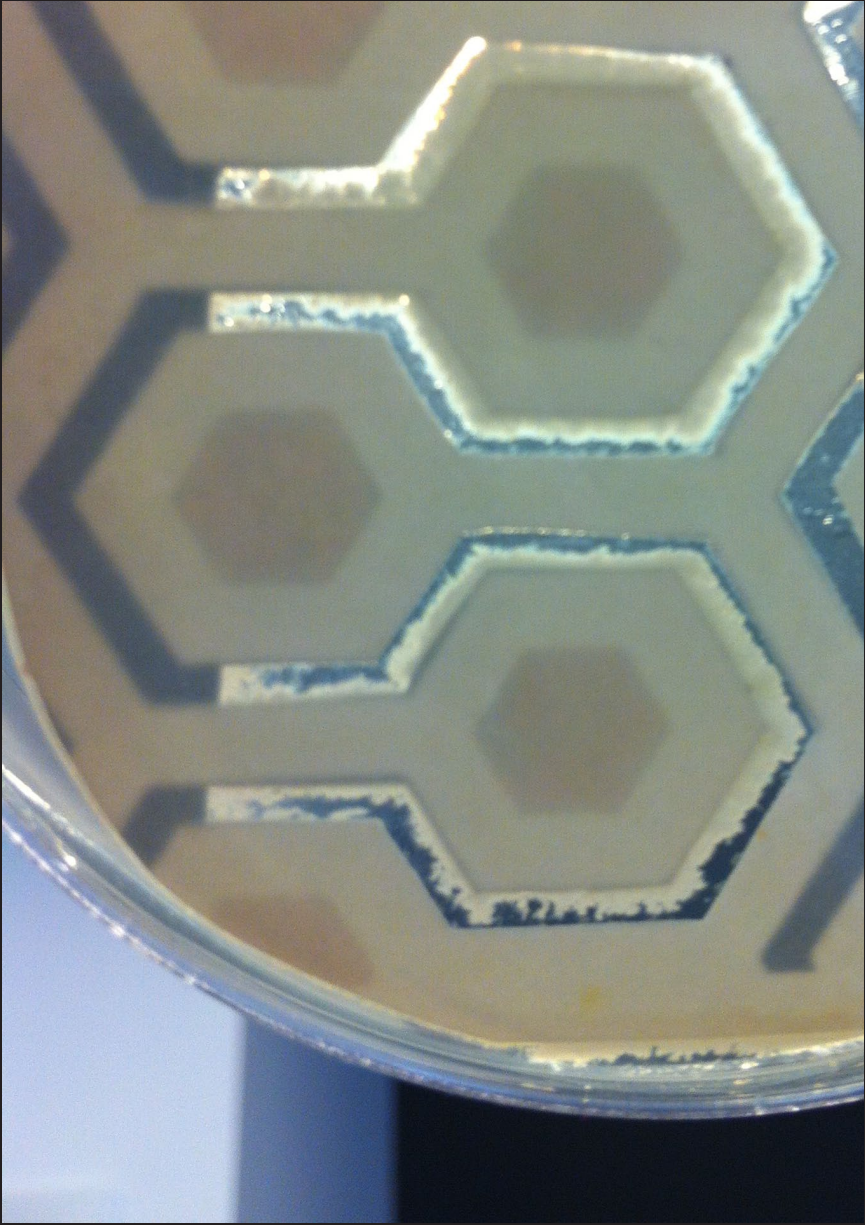
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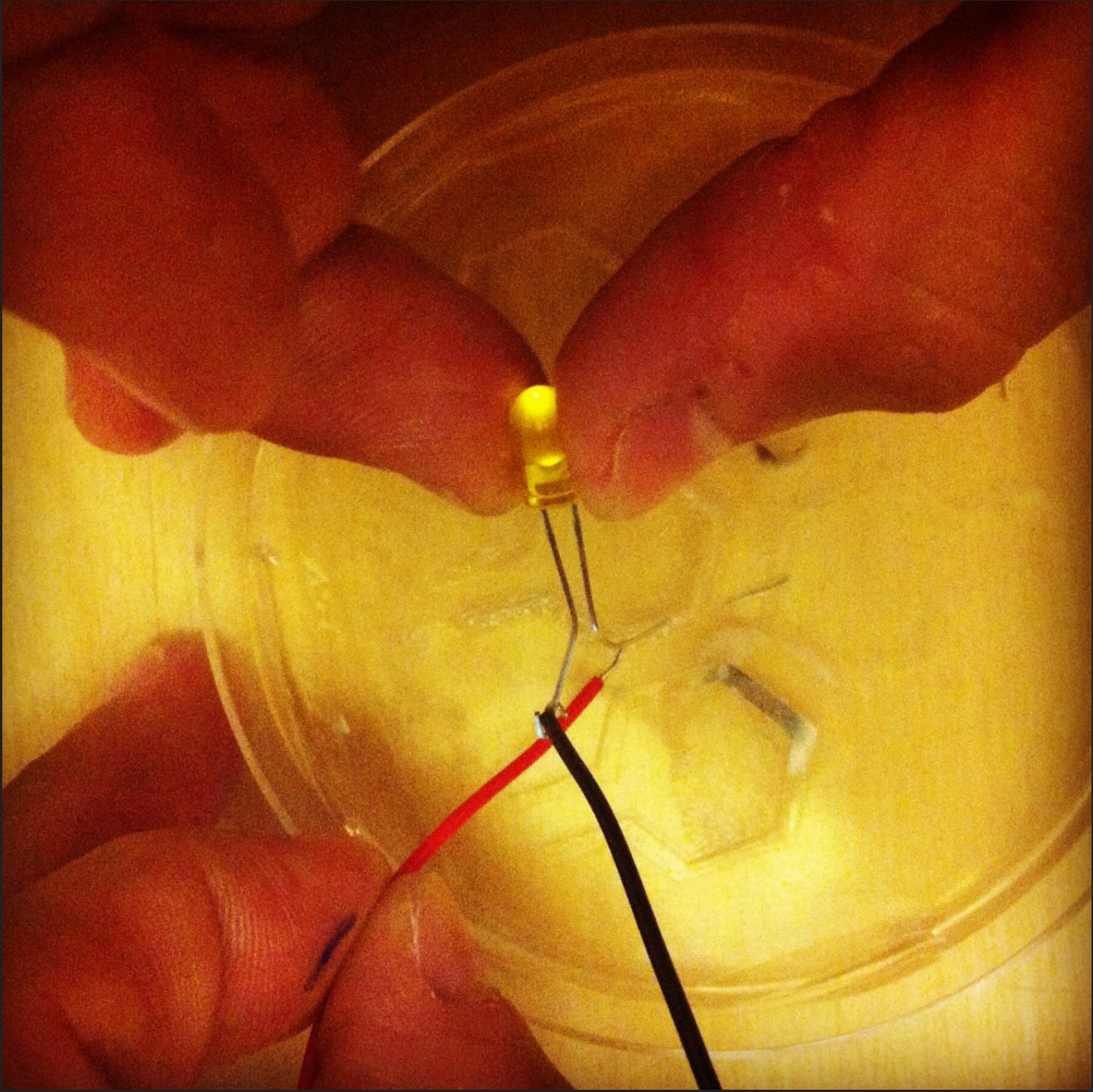
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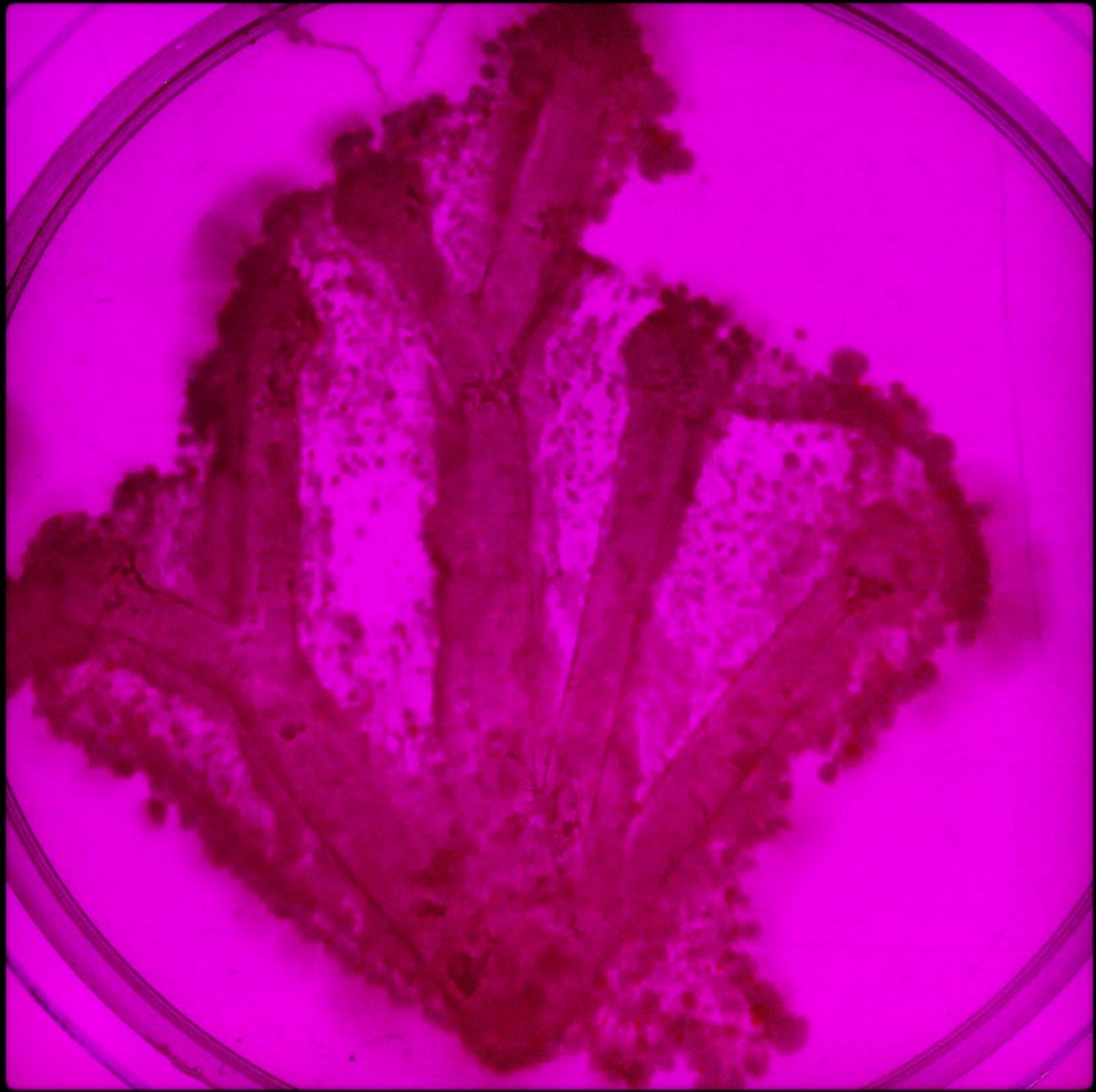












Synthetic Aesthetics

▶ HOME

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TEAM

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THE RESIDENTS

AGAPAKIS + TOL

FEDERICI + BENJ

IWASAKI + CATT

LEGUIJA + CHAFE

MANSY + POHFLE

LIM + CAREY

How would you design nature?

Synthetic Biology is a new approach to engineering biology. By applying engineering principles to the complexity of living systems, scientists and engineers are making biology a new material for design.

Synthetic Aesthetics, a project run by the University of Edinburgh and Stanford University, is bringing together synthetic biologists, designers, artists and social scientists to explore collaborations between synthetic biology, art and design.

[READ MORE →](#)

Highlight

EVOLUTION,
FUNCTION OR
FASHION?

SYNTHETIC AESTHETICS SEMINAR: FORM FOLLOW EVOLUTI
FUNCTION OR FASHION?

03/11/2010 - ALEXANDRA DAISY GINSBERG - 7PM, FRIDAY 5 NOVEMBER 2010

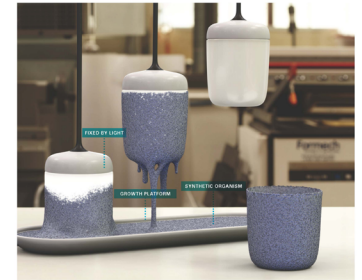
SEMINAR E14-633 MIT MEDIA LAB

Synthetic Biology

LIVING AMONG LIVING THINGS

Exploring how to create living designs through scientific collaboration and experimentation.

We are probing the possibilities of synthetic biology applied to the realm of consumer goods. We have considered three possible future scenarios aimed to create dialogue and questions about this emerging field of science.



What if we could nurture organisms tailored to meet our bodies' needs?

An engineered organism could live off the cotton balls that people use to apply skin care products. The microbial culture contained in the vessel produces a regular daily supply of skin care product.

What if we could play a greater role in designing biodiversity?

Envision using plants to detect chemicals in the environment. The data collected could be used to produce genetically customized seeds to increase biodiversity instead of monoculture.

What if packaging could produce its own contents?

An extreme probiotic drink, for instance, could rely on bacteria to form a physical cup; it could remain in a dormant state until liquid is poured into it, turning it into a healthy beverage for consumers.

ALEXANDRA DAISY GINSBERG

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Writing
Talks
Workshops
Exhibitions
Limited Editions

Projects

The Supertask 2011-
Synthesis Exchange Lab 2011
Synthetic Aesthetics 2010-
E. chromi 2009
The Synthetic Kingdom 2009
Growth Assembly 2009
Biome 2009
Design Evolution 2008
Microbe Controllers 2008
Early Exit 2008
Nano Ecologies 2008
Self-Worth 2008
BioSpy 2007
Touching the City 2006

Synthesis Exchange Laboratory

Design of a six-day intensive lab course for artists, designers, scientists, engineers and others

[Project website](#)





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BioBricks Foundation
@biobricks

NY Times: "Genome Detectives Solve a Hospital's Deadly Outbreak"
<http://t.co/1CswBiTx>
24 Aug 2012 · reply · retweet · favorite

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Synthetic Biology 6.0 Conference



BioBrick™ Public Agreement



Stanford BIOFAB



The BBF's mission is to ensure that the engineering of biology is conducted in an open and ethical manner to benefit all people and the planet.

We believe fundamental scientific knowledge belongs to all of us and must be freely available for ethical, open innovation. This is a new paradigm.

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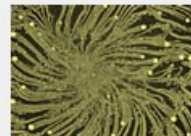
The Synthetic Biology Network

OPENWETWARE.ORG



- › Protocols
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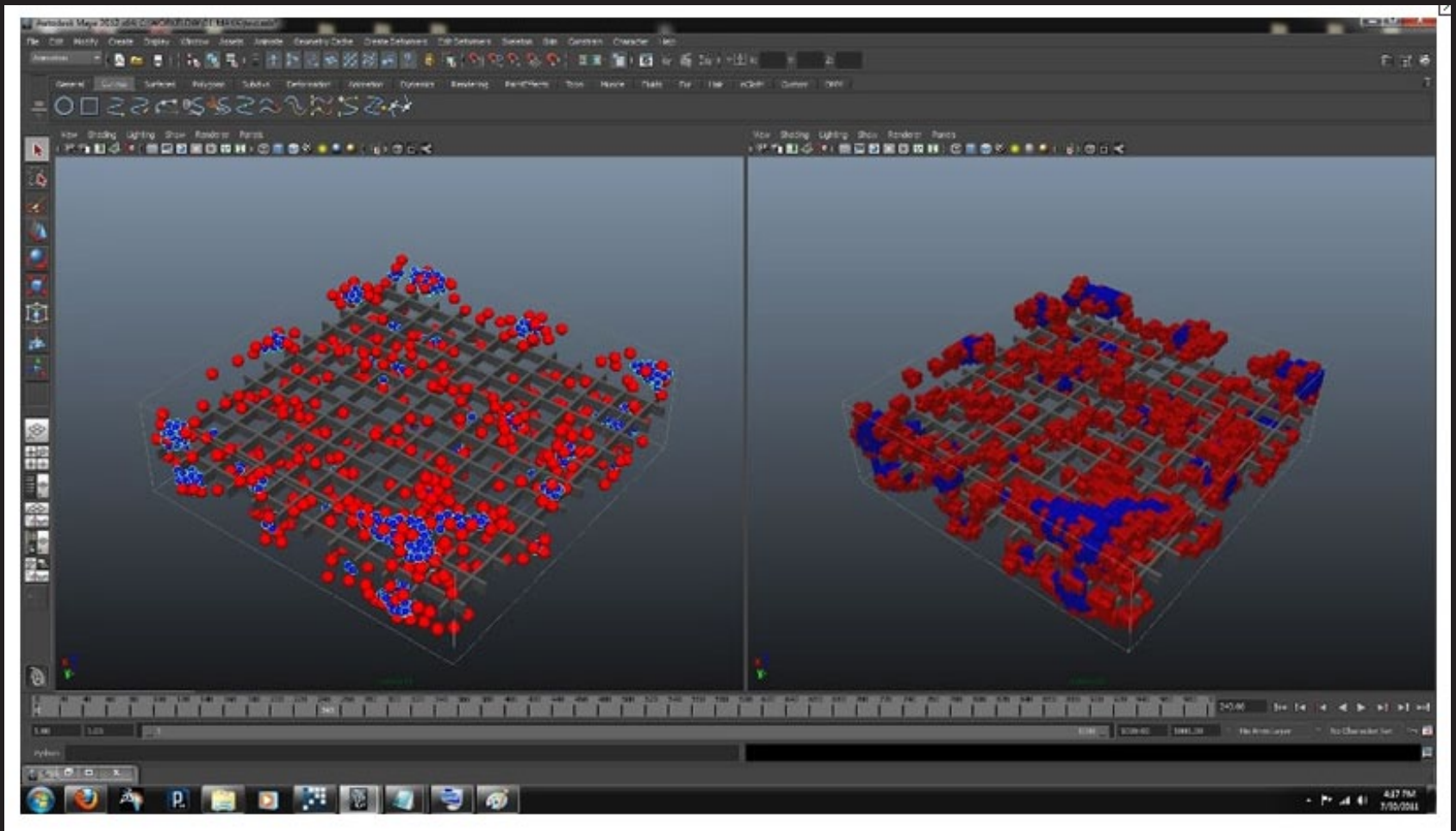


- › Catalog of parts & devices
- › DNA repositories
- › Users & groups

IGEM.ORG



- › What is Igem?
- › Start a team
- › 2011 teams



autodesk, david benjamin, the living

Clotho is for engineering synthetic biological systems and managing the data which is used to create them. It also provides a mechanism to begin the process of creating standardized data, algorithms, and methodologies for synthetic biology.



1. Connect



Connect to repositories of biological data

2. Select



Choose the apps you want to get your job done

3. Specify, Design, Assemble



Create the biological system you desire

4. Share



Share your designs with other groups and institutions

5. Develop



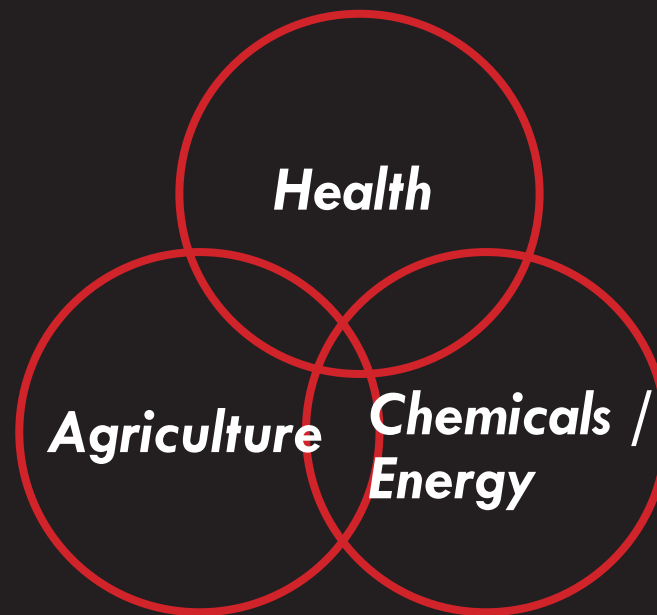
Create your own apps and share them with the Clotho community



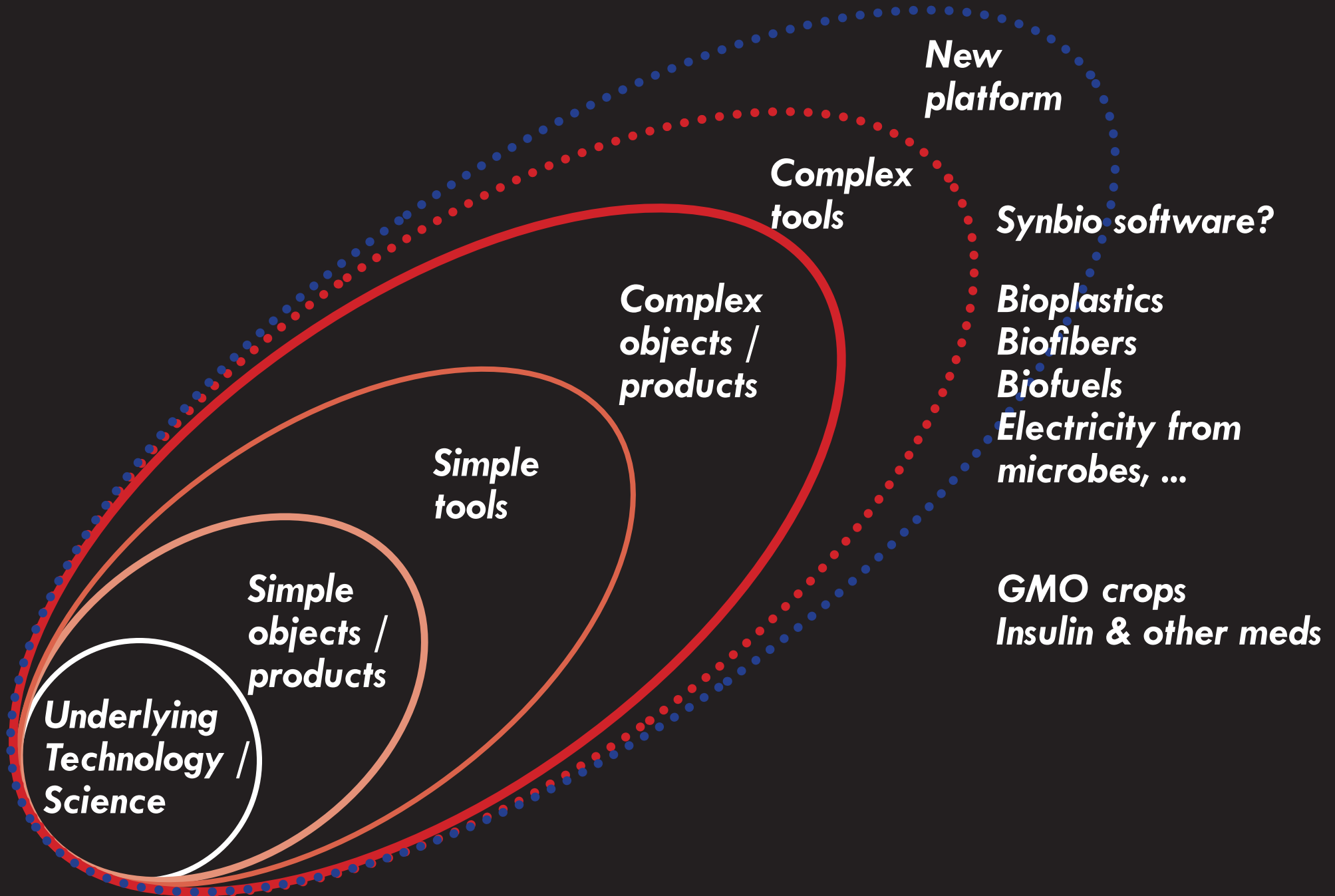




'BIOECONOMY' ca. 1997...



BIOECONOMY CA. ~2010



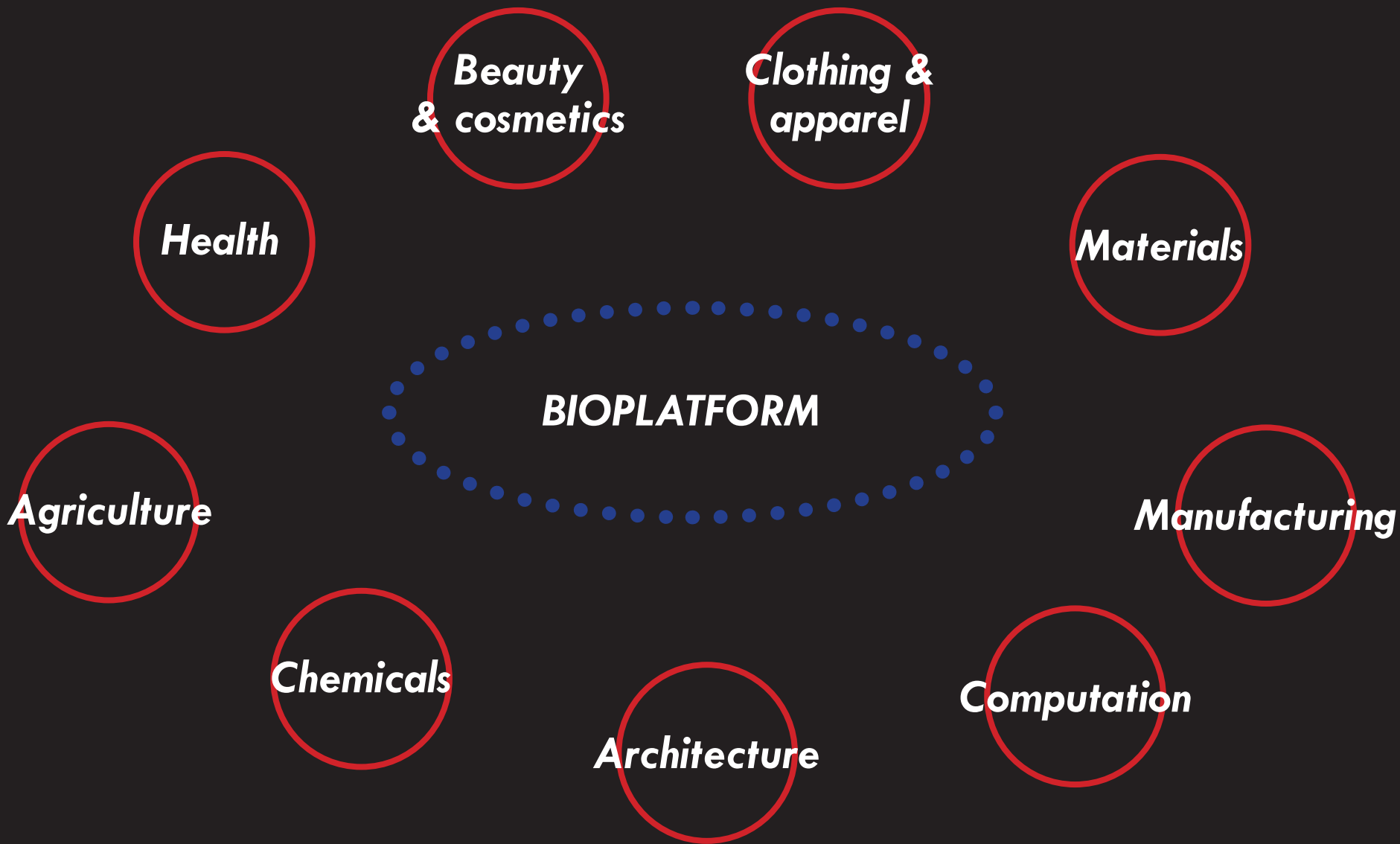
Health

Agriculture

Chemicals

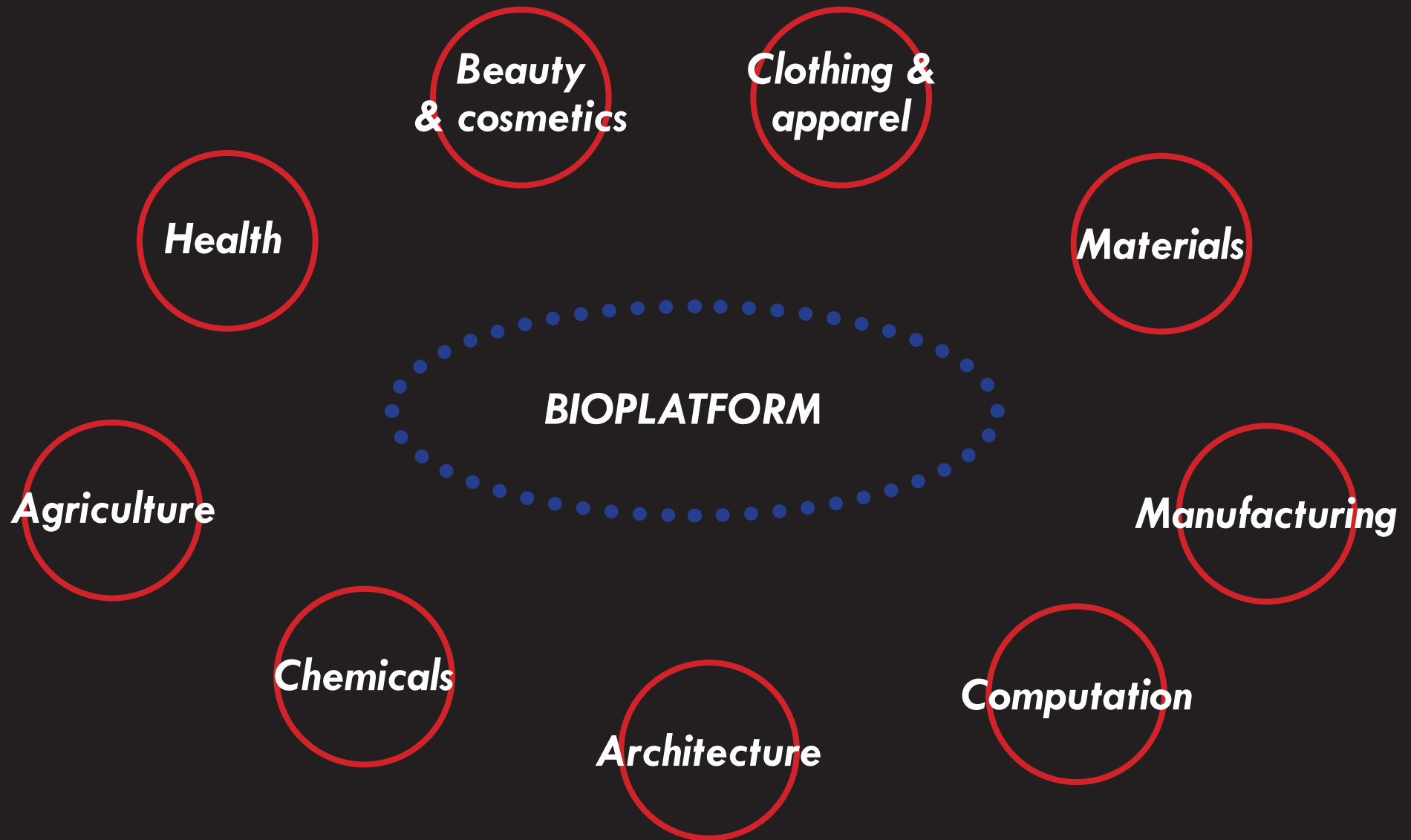
BIOPLATFARM

The diagram features a dark gray background. On the left side, there are three red-outlined circles arranged vertically. The top circle contains the word 'Health', the middle one 'Agriculture', and the bottom one 'Chemicals'. To the right of these circles is a blue dotted oval containing the word 'BIOPLATFARM' in white, bold, uppercase letters.

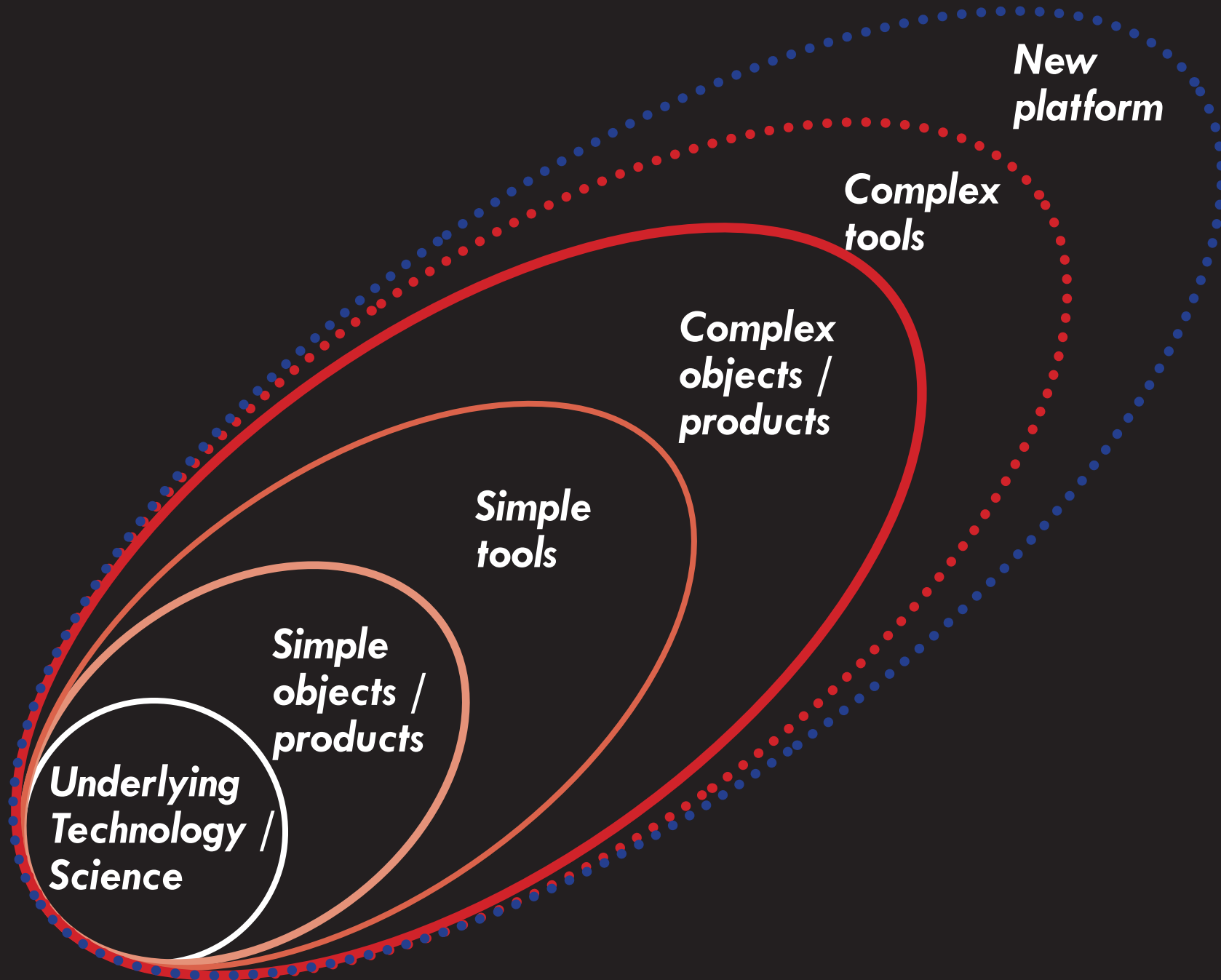


THE ECONOMY CA. ~ 2060

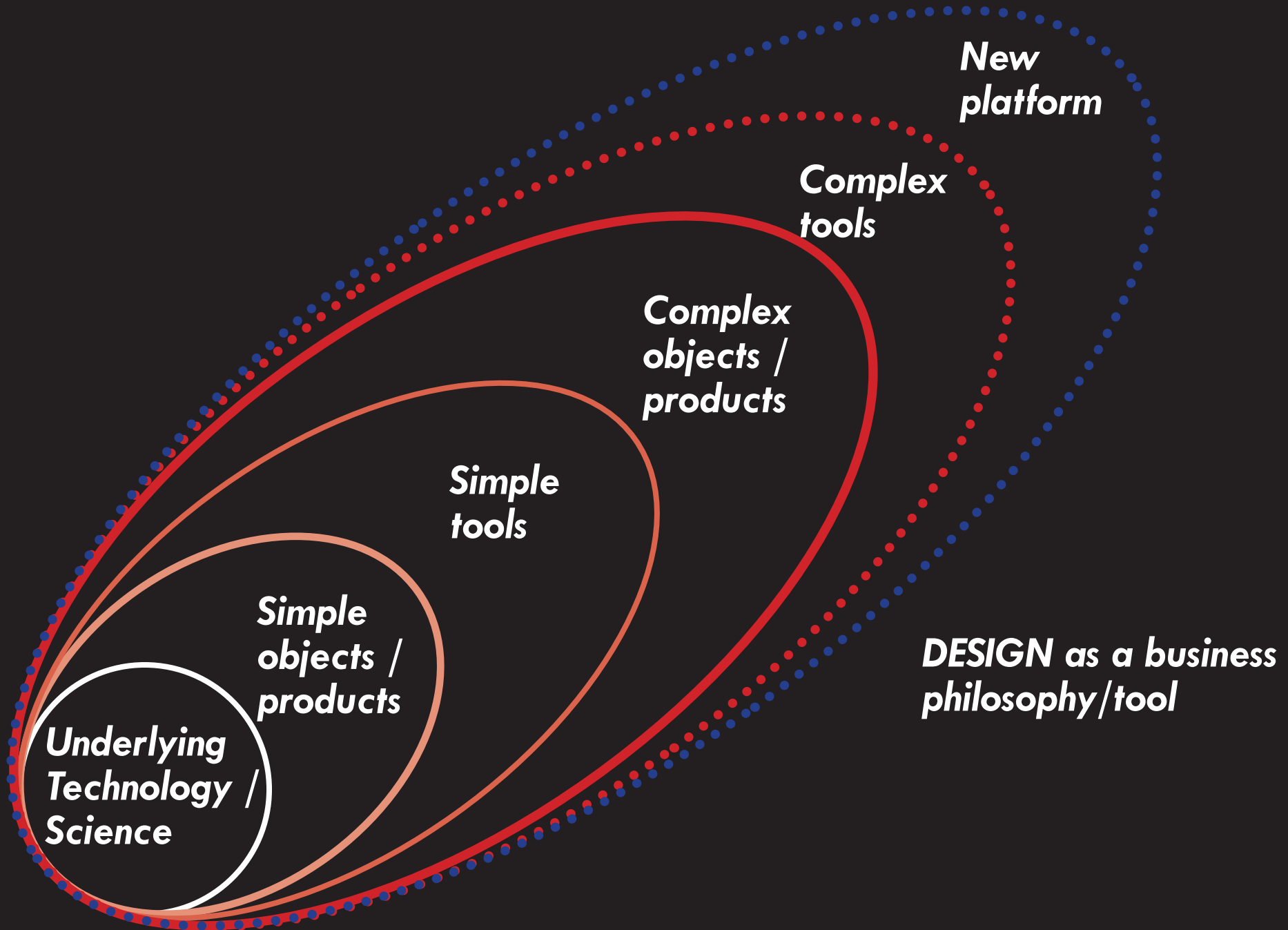
(ANALOG>DIGITAL>BIOLOGICAL>DIGITAL>ANALOG...)



SO WHERE & HOW DO YOU WANT TO PLAY?



SO WHERE & HOW DO YOU WANT TO PLAY?



> *Invest in the bioplatform, not just your products/industry*

> *Create specific scenarios for your products/context*

> *Play with others - low stakes*

IN CONCLUSION...

**1 // THE MOST CRITICAL SHIFT IN BUSINESS STRATEGY
IN THE NEXT DECADES IS BEING FUELED BY THE
DISCIPLINE OF DESIGN**

**2 // THE CONCEPT OF BIOECONOMY WILL BE OBSOLETE IN
THE NEXT FIFTY YEARS, MAYBE EVEN LESS**