Business models and channels to market

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evolution of sector

1960s	**mainframes**	ibm
1970s	**micros & minis**	intel dec
1980s	**desktop PCs**	ibm commodore compaq apple
1990s	**local networks**	microsoft novell sun
2000s	**internet**	google altavista mozilla
2010s	**mobile**	apple samsung google facebook
2010s	*cloud*	*amazon netflix itunes iplayer*
2020s	*internet of things? AI? digital twins?*	

business model choices

revenue: free or **paid-for** or **freemium**

architecture: installed or **app** or **cloud/saas**

ip: patent or **trade secret** or **no-IP (eg f/oss)**

channel: in-house or **spinout** or **third party**

product: software or **consultancy** or **s/w + hardware**

policy: revenue and/or **PR** and/or **"impact"** (🇬🇧)
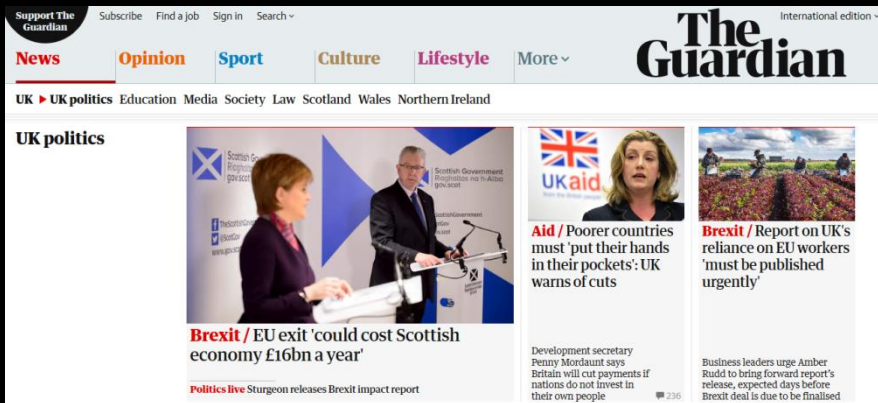
revenue

free
www.theguardian.com/uk

freemium
http://www.telegraph.co.uk/

Other examples:
www.linkedin.com

paid subscription
www.thetimes.co.uk

(Links OK Jan 2019)

the first euro

expectation of service?
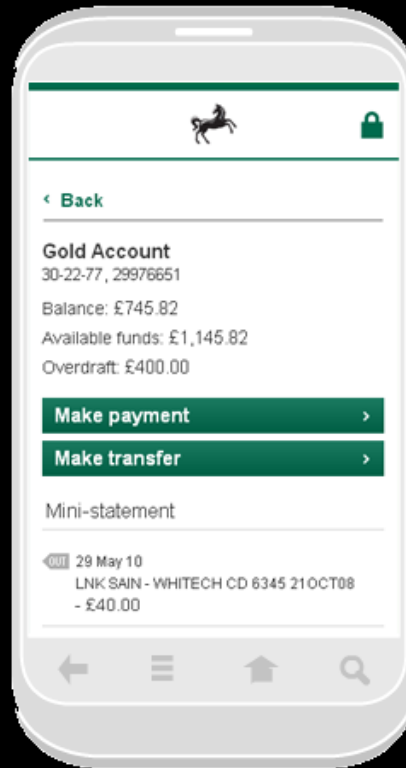expectation of support?
who?
24*7?
service level agreement?

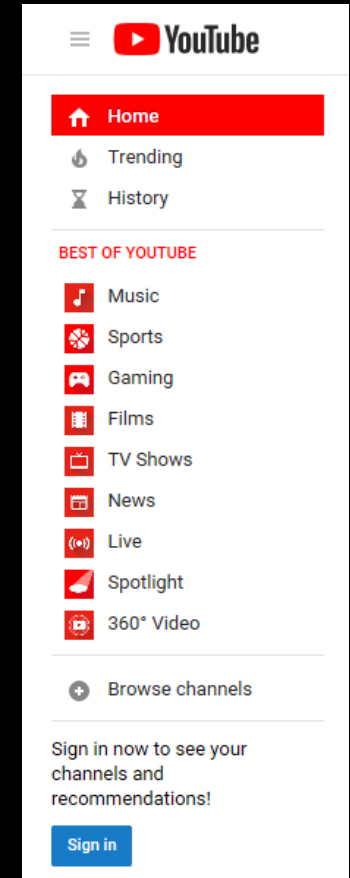**the first euro of revenue can be expensive**

architecture

installed - software used to be sold in boxes

app – sell a download

cloud/saas – sell (or provide free) a service
Typically via a generic browser

advantages of server-only solution

server

no client software (just any browser)
all bug fixes in one central place
works on multiple client operating systems
control of access (password) to premium functions
no distribution or redistibution of software
efficient use of f/oss …

advantages of server-only solution

f/oss has 4 required freedoms

freedoms apply to USE

OK to use f/oss on the server

0 = run the software as you wish, for any purpose
1 = study how the software works, and change it as you wish
2 = redistribute the software to help others
3 = distribute modified versions of the software to others

f/oss licence restrictions apply to DISTRIBUTION

server model distributes service NOT software

so f/oss licence restrictions do not apply **

** a few licences such as AGPL do have applicable restrictions

advantages of server-only solution
for medical software

Use PC or phone for <u>entry of data</u> and <u>display of results</u>

Easy - via a browser interface and standard protocols

The PC or phone is then NOT a medical device.

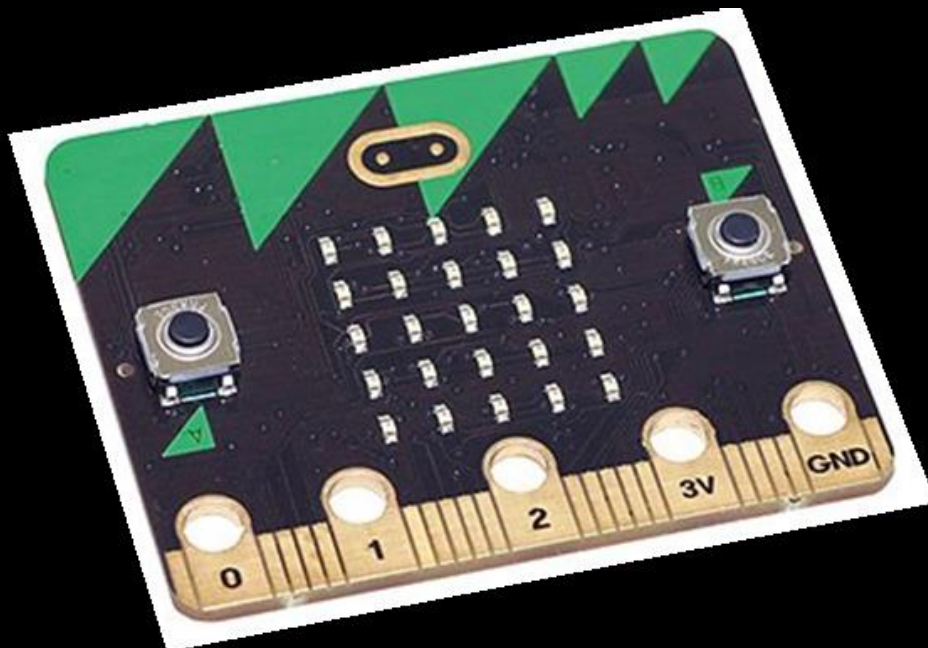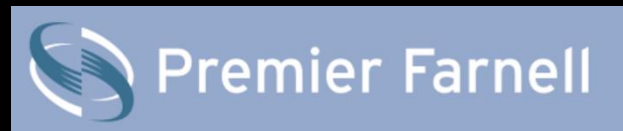**Only server software requires medical device validation**

examples - 1

some university projects
channel: *in-house*

micro:bit

credit-card size computer
free to all UK year 7 children

software created pro-bono

BBC

Premier Farnell

ARM   Microsoft

Lancaster University

micro:bit - rationale

800,000+ to be distributed annually
software support funded by university

revenue: *free*
architecture: *installed* plus downloads *saas*
ip: *source code =* *f/oss*
channel: *in-house*
product: *pure software*
policy: *PR and educational outreach* *"impact"*

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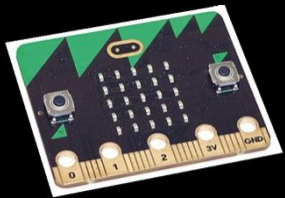
aberystwyth farm apps

farm apps - rationale

advertisement for academic expertise
dissemination of research

revenue: *free*
architecture: *app*
ip: *none* - *software based on published research*
channel: *in-house*
product: *pure software*
policy: *PR and outreach "impact"*

apps from training publications

Essentials of Fire Fighting, 6th Edition Exam Prep Plus App

$14.99

Hazardous Materials Technician, 1st Edition Exam Prep Plus App

$9.99

https://www.ifsta.org/shop/product-categories/ifsta-apps (Link OK Jan 2018)

fire apps - rationale

capitalise on existing unique copyright IP

revenue: *sales b2b and b2c*
architecture: *app*
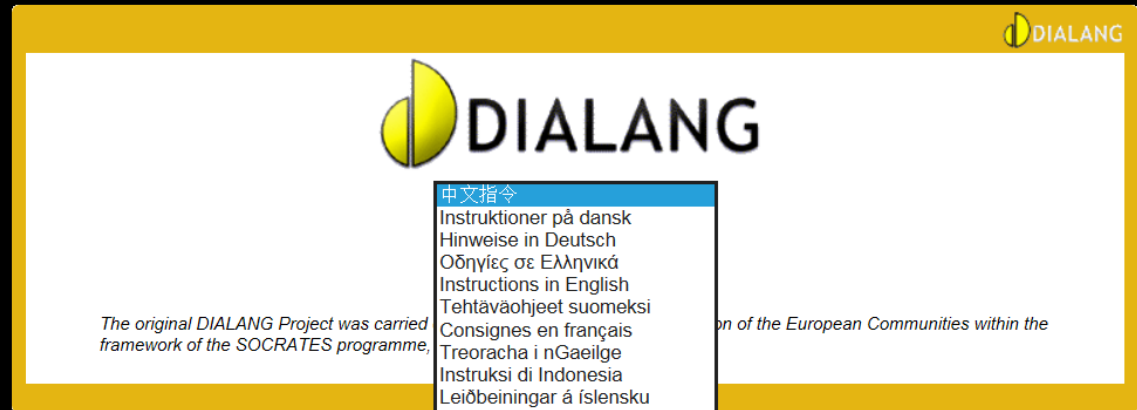**ip:** *existing copyright* materials (sector knowledge)
channel: *in-house*
product: *pure software*
policy: *commercial*

dialang

https://dialangweb.lancaster.ac.uk/

DIALANG

中文指令
Instruktioner på dansk
Hinweise in Deutsch
Οδηγίες σε Ελληνικά
Instructions in English
Tehtäväohjeet suomeksi
Consignes en français
Treoracha i nGaeilge
Instruksi di Indonesia
Leiðbeiningar á íslensku
Istruzioni in italiano
日本語による手順の説明
Instructies in het Nederlands
Instruksjoner på norsk
Instruções em Português
Instrucciones en Español
Instruktioner på svenska
한국어 지시사항

The original DIALANG Project was carried ... on of the European Communities within the framework of the SOCRATES programme,

Escolher um teste

	👂	✍️			📖
ALEMÃO	🟡	🟡	🟡	🟡	🟡
DINAMARQUÊS	🟡	🟡	🟡	🟡	🟡
NORUEGUÊS	🟡	🟡	🟡	🟡	🟡
ITALIANO	🟡	🟡	🟡	🟡	🟡
NEERLANDÊS	🟡	🟡	🟡	🟡	🟡
GREGO	🟡	🟡	🟡	🟡	🟡
FRANCÊS	🟡	🟡	🟡	🟡	🟡
IRLANDÊS	🟡	🟡	🟡	🟡	🟡
ESPANHOL	🟡	🟡	🟡	🟡	🟡
PORTUGUÊS	🟡	🟡	🟡	🟡	🟡
INGLÊS	🟡	🟡	🟡	🟡	🟡
FINLANDÊS	🟡	🟡	🟡	🟡	🟡
ISLANDÊS	🟡	🟡	🟡	🟡	🟡
SUECO	🟡	🟡	🟡	🟡	🟡

terminado   disponível   não disponível

online
adult language tests
CEF
14 euro languages

Lancaster University

dialang - rationale

EU-funded academic project has finished
no resources now – volunteers fix (few) bugs
1,000,000+ tests taken

revenue: *free (no guarantee of service)*
architecture: *access via browser* **saas**
ip: *scoring and calibration is* **trade secret**
channel: *in-house*
product: *pure software*
policy: *service to linguistics community* **"impact"**

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english semantic parser

corpus-based parser
part-of-speech & semantic tagging

UCREL
University Centre for Corpus
Research on Language

Lancaster
University

parser - rationale

companies pay annual fee (for key) to use
academics worldwide offered "free" key

revenue: *freemium*
architecture: *password-protected saas api*
ip: *trade secrets* = *proprietary s/w and tagged corpus*
channel: *in-house*
product: *pure software*
policy: *revenue* and *"impact"*

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University
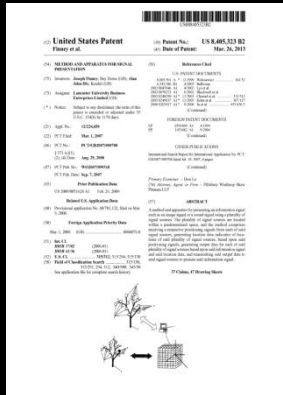
examples - 2

external route to market
channel: *third-party*

firefly

software calculates 3D (x,y,z) positions of
(many thousands of) randomly located lights

firefly - rationale

fully commercial product

revenue: *commercial licence*
architecture: *software **embedded** in product*
ip: ***granted patents in USA and China; others pending***
channel: ***third-party licensee***
product: ***software plus hardware design***
policy: ***revenue** and **"impact"***

software spinouts

start a software spinout when:

you need to employ non-academic staff
you need external funding
the objectives are fully commercial …
… to avoid state aid issues

software spinouts

software spinouts can be very lean

no office – work at home
build on home PC or laptop
no capital expenditure
employ students? part time?
academics' spare time

software spinouts

initial location can be anywhere
but clustering is beneficial for growth
access to people and capital

financial tech: London
ad-tech/media: London Berlin Helsinki
gaming: Stockholm
bio software: Cambridge

examples - 3

university software companies
channel: *spinout*

LiftUpp ltd
tool & monitor for dental students

15DEC2015:   LiftUpp secures £425k investment

Assessment software developed
by educators for educators

Liftupp triangulates all assessment data to give a
complete picture of student performance, professional
competence and regulatory body compliance

LIFTUPP
PERFORM DEVELOP PROGRESS

UNIVERSITY OF
LIVERPOOL

LiftUpp - rationale

fully commercial product

revenue: *commercial b2b*
architecture: *app* & *cloud*
ip: *proprietary software* **& sector knowledge**
channel: *spinout* *funded by* **sales & VC**
product: *software*
policy: *revenue*
location: *Liverpool*

UNIVERSITY OF
LIVERPOOL

Dallas, Texas – March 5, 2019
ExamSoft, a secure testing and assessment platform company based in Dallas, announces the acquisition of leading UK-based clinical assessment company, Liftupp.

relative insight ltd
digital analysis of marketing

INSIGHTS AS A SERVICE

13-14 OCTOBER 2015
OLYMPIA, LONDON

ad:tech

award-winning analysis of textual big data

Next Big Thing at ad:tech London

awarded to Relative Insight

Lancaster University

relative insight - rationale

fully commercial product

revenue: *commercial b2b spinout*
architecture: *consultancy using in-house software*
ip: *patent pending* and *trade secrets*
channel: *spinout* funded by *sales* and *VC*
product: *consultancy*
policy: *revenue*
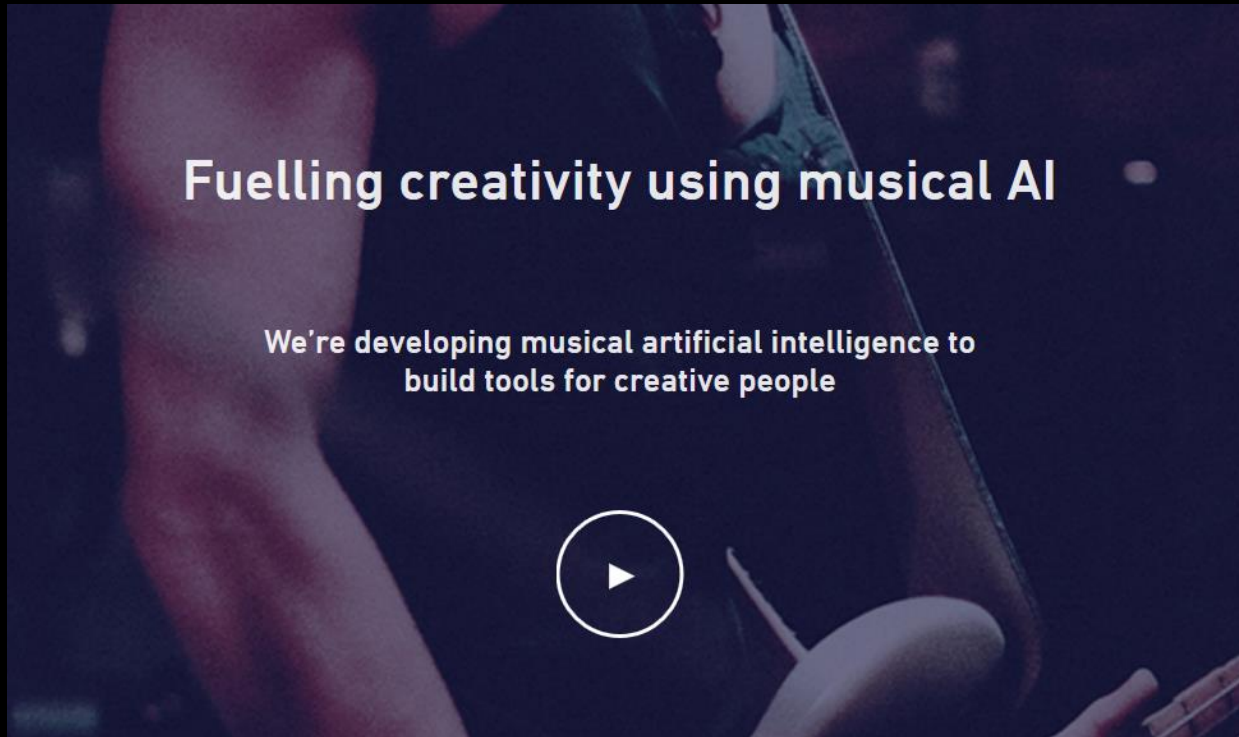location: *Lancaster* and *London*

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jukedeck ltd
"original music at the touch of a button"

Fuelling creativity using musical AI

We're developing musical artificial intelligence to build tools for creative people

UNIVERSITY OF CAMBRIDGE

jukedeck - rationale

fully commercial product

revenue: *commercial b2b/b2c spinout*
architecture: *saas*
ip: *proprietary software*
channel: *spinout* funded by *sales* and *VC*
product: *consultancy*
policy: *revenue*
location: *London*

UNIVERSITY OF CAMBRIDGE

Warwick Analytics

predictive data analytics

SyndicateRoom is for sophisticated investors who understand that their capital is at risk.

SYNDICATE ROOM   INVEST   FUNDS   RAISE   ABOUT   SR LIVE

Warwick Analytics completed its latest SyndicateRoom round in July 2017, overfunding to **£475,609**. The company' first round raised **£392,000** in June 2015 to hire additional technical and sales staff to complement its growth.

THE UNIVERSITY OF
WARWICK

At Sep 2018 Warwick Uni had 3.8% equity
Source UK Companies House

Warwick Analytics
rationale

fully commercial product

revenue: *commercial b2b spinout*
architecture: *consultancy using in-house software*
ip: *trade secrets*
channel: *spinout funded by sales and VC*
product: *consultancy*
policy: *revenue*
location: *London, Lisbon, USA, Germany, China*

THE UNIVERSITY OF
WARWICK

https://warwickanalytics.com// (Link OK Jan 2019)

active energy management
for buildings
for company estates

http://www.piliogroup.com/ (link OK Jan 2019)

pilio - rationale

fully commercial product

revenue: *commercial b2b spinout*
architecture: *installed* (smart metering) *and* *saas*
ip: *proprietary software*
channel: *spinout* funded by *sales*
product: *consultancy enabled by unique software*
policy: *revenue*
location: *London*

hybrid instruments ltd
neutron spectrometry
world-leading instruments

hybrid - rationale

fully commercial product

revenue: *commercial b2b spinout*
architecture: *embedded software*
ip: *granted patents*
channel: *spinout* funded by *sales*
product: *equipment enabled by unique software*
policy: *revenue*
location: *Lancaster*

Lancaster University

DEPARTMENT OF COMPUTER SCIENCE
UNIVERSITY OF OXFORD
60th ANNIVERSARY

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Diffblue, a University of Oxford AI spin-out, raises $22 million in Series A funding

Posted: 27th June 2017

Diffblue, a world leader in AI for code, today announces that it has raised $22 million in Series A funding, one year after its spin-out from the University of Oxford. This round is led by Goldman Sachs Principal Strategic Investments, alongside Oxford Sciences Innovations (OSI) and Oxford Technology and Innovations Fund (OTIF).

Founded by University of Oxford Computer Science Professor Daniel Kroening and Dr. Peter Schrammel, Diffblue develops AI for code. Daniel has brought together a team that includes some of the world's leading experts in computer-aided verification and machine learning.

The company automates many traditional coding tasks: bug fixing, test writing, finding and fixing exploits, refactoring code, translating from one programing language to another, and creating original code to fit specifications. Diffblue's core AI builds an exact mathematical model of any code base. This model allows a very deep semantic understanding of what a program is trying to do.

diffblue
AI for Code

UNIVERSITY OF OXFORD

diffblue - rationale

fully commercial product

revenue: *commercial b2b spinout*
architecture: *saas*
ip: *proprietary software*
channel: *spinout* funded by *sales* and *VC*
product: *consultancy enabled by unique software*
policy: *revenue*
location: *Oxford*

summary

**review objectives
determine constraints**

▼

choose appropriate business model

▼

launch

Questions?

business model choices

revenue: **free** or **paid-for** or **freemium**

architecture: **installed** or **app** or **cloud/saas**

ip: **patent** or **trade secret** or **no-IP (eg f/oss)**

channel: **in-house** or **spinout** or **third party**

product: **software** or **consultancy** or **s/w + hardware**

policy: **revenue** and/or **PR** and/or **"impact"** (🇬🇧)