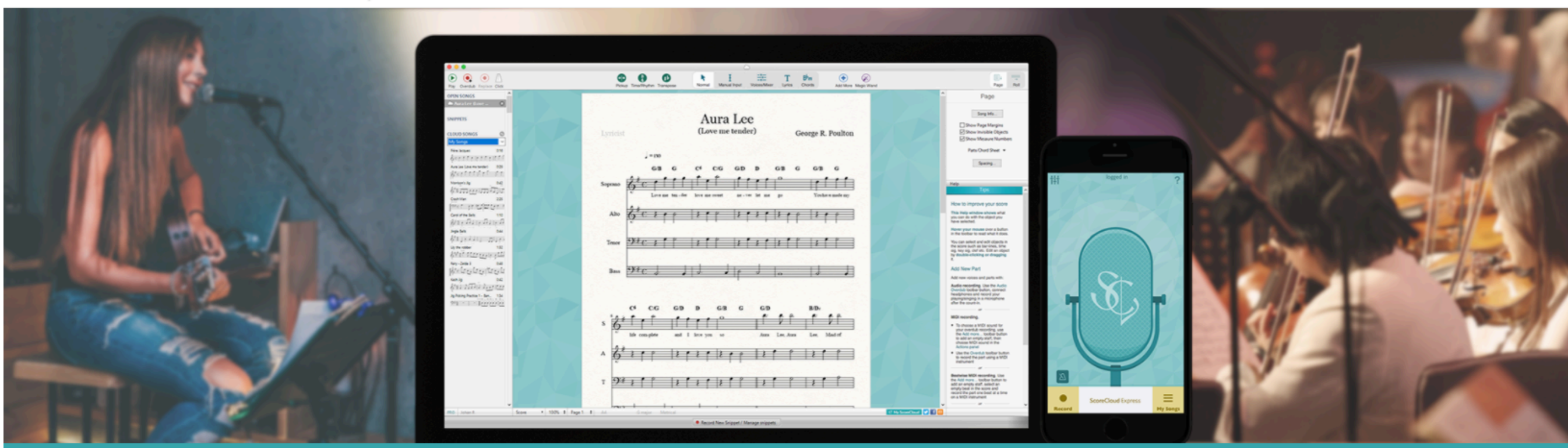


# "How to turn a PhD into a product"

a wiggled detour into tech business from a strictly personal perspective

Sven Ahlbäck, CEO, Co-Founder, Doremir Music Research & Professor, Kungliga Musikhögskolan, Stockholm



Download ScoreCloud 4. Free for PC & Mac! →

Download now!

[https://youtu.be/eJ\\_8vgguwow](https://youtu.be/eJ_8vgguwow)

## Play your music – ScoreCloud notates!

### The Most Intelligent Music Notation Software

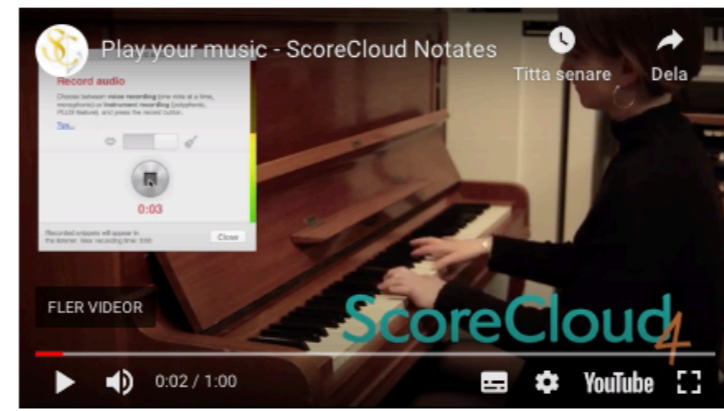
ScoreCloud instantly turns your songs into sheet music. As simple as that!

- Instant Score from MIDI or Audio
- Arrange and Edit your Score
- Print, Export and Share

"Like Google Translate for Music"



### ScoreCloud 4: Polyphonic Audio Analysis



Transcribe any polyphonic or monophonic instrument live recording into sheet music. Notating music has never been easier.

Music notation software ideal for musicians, students, teachers, choirs

# Agenda

- Why PhD? - From music to research
- Why Product? - from research to business
- Let someone else license it!?
- Do it yourself - Becoming a Startup
- From Research to Business - The business plan, Vision, Team, Business Model
- Funding - Loans, Grants, Angel? investors, VCs
- From Research to Product - Industrialization, Scalability, Design, UX/UI, A/B tests ...
- User requests - Pivot - Scorecleaner - > ScoreCloud Express
- All the rest - Distribution, Marketing, Sales, Support, Finance, Board, Owners, Legal...
- Pros and Cons

Nurture your vision!

**My doctoral project: From tonality in older Swedish folk music  
to modelling music structure:**

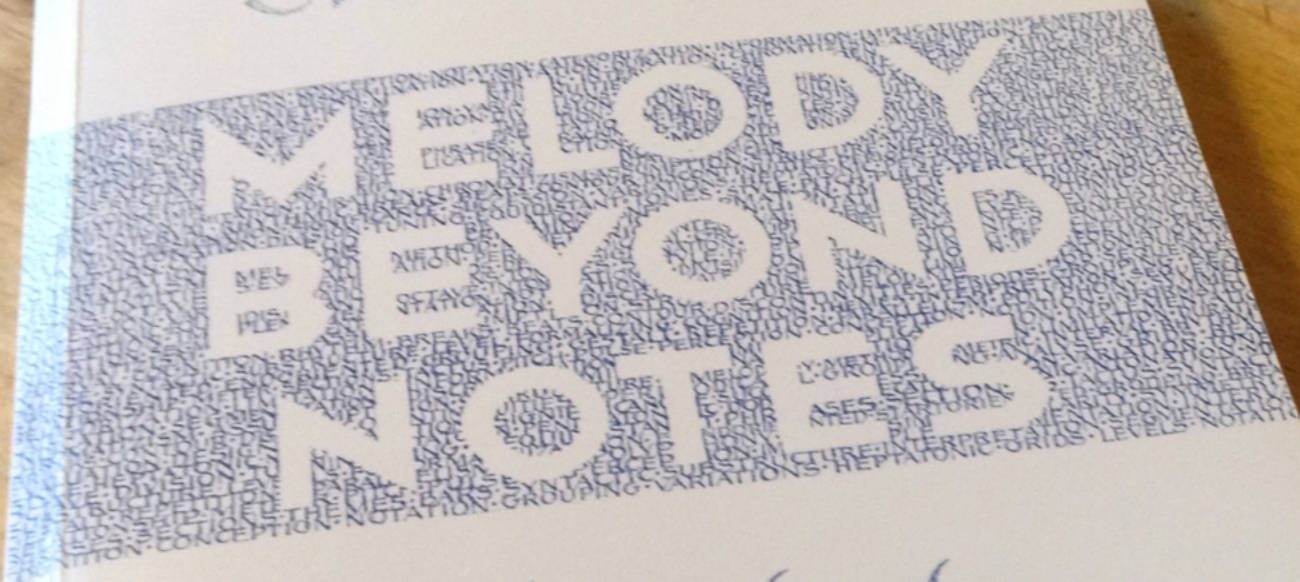
How **similarly** do we experience basic music  
structure?

Meter,  
Rhythm  
Tonality, Phrases  
etc.

Can music structure be **modeled** based on  
capacities that we all share?

Perceptual/  
Cognitive

Sven Ahlback

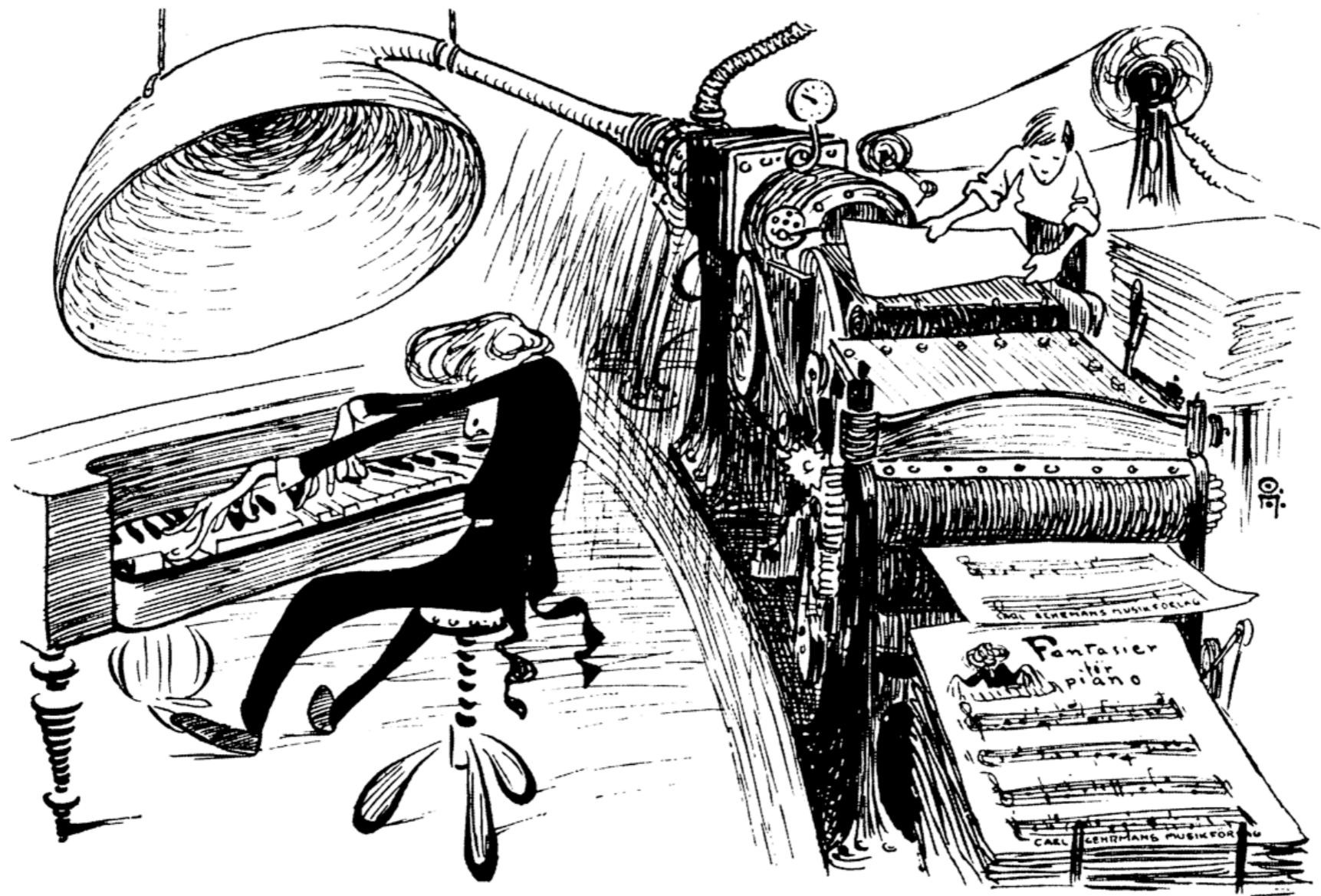


*A study of  
melody cognition*

## An embryo to automatic transcription from performance MIDI input

The image shows a musical score for Raag Suddha Danyasi, titled "danyasi.tot.mf". The score is presented in a single system with a treble clef and a 16/8 time signature. The tempo is marked as 140. The score is annotated with various labels (A1, B1, C1, D1, B2, D2, D3, B3, F1, G1, B1, F1, H1, I1, J1, K1, B1, F1, G1, H1, J1, K1, C1, H1, N1, N2, I1, J1, D1, K1, O1, H2, L1, P1, Q1, E1, M1, L2, P2, S1, E1, R1, P2, S1) indicating local phrase boundaries and other musical features. The score is overlaid with a large red text box containing the quote: "I don't care about the research but I need the software".

Figure 6-69. Output from computer model analysis including local phrase boundary analysis performed on Raag Suddha Danyasi



1899

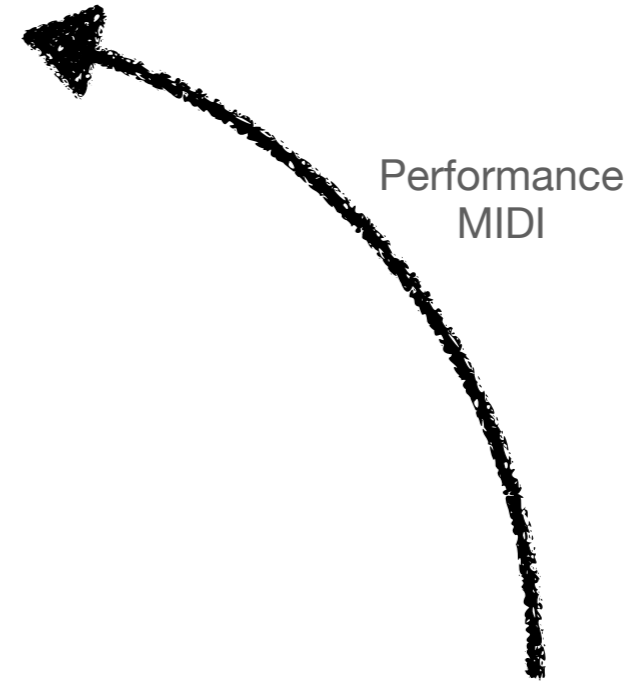
# Interpretation by Notation Software

Track 1

10 7 9 13

15 9 11 14

13 10



Original Score

Andante.  $\text{♩} = 117.$

*espress.  
dim*

Nocturne.





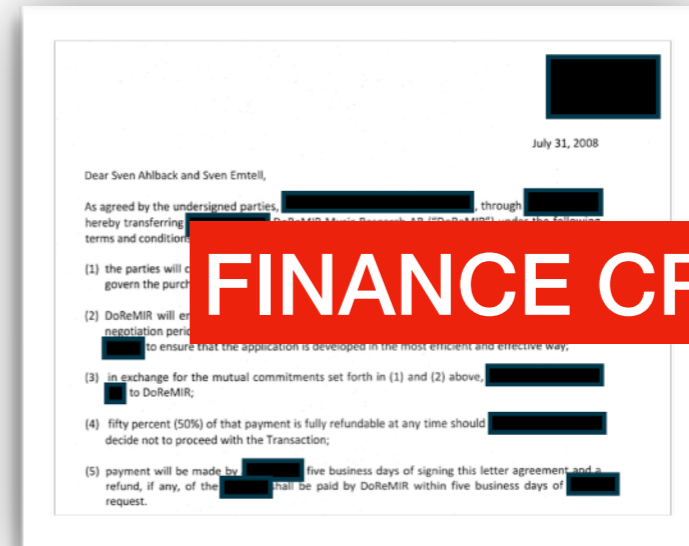
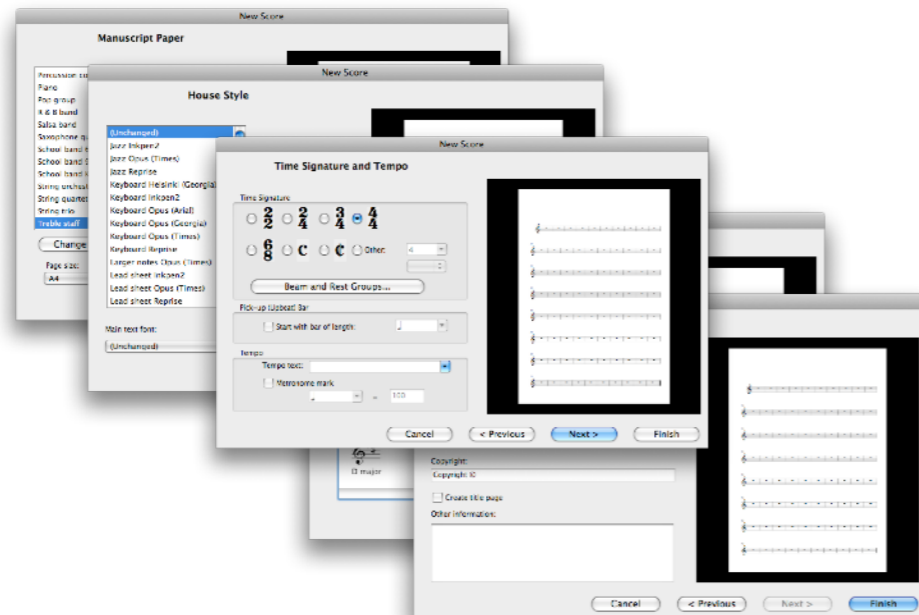
 **DoReMIR**  
MUSIC RESEARCH AB

# Sell it and let someone else take care of the business!

... finally a 'thick' contract...

An easy ride - no need to build a end customer business - btc

Lose control - will they hide it? will they kill it?



**FINANCE CRISIS!**

**Make it polyphonic  
- and we are interested...**

**and YES we did!**



**Now what?**

**Make our own product!**

# Becoming a StartUp - Getting help from the Business Incubator

Highly recommended!

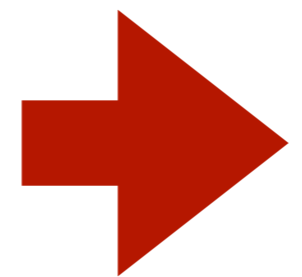
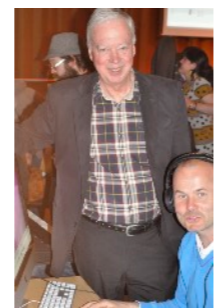
Funding

Recruiting

Office Space in a Startup hub

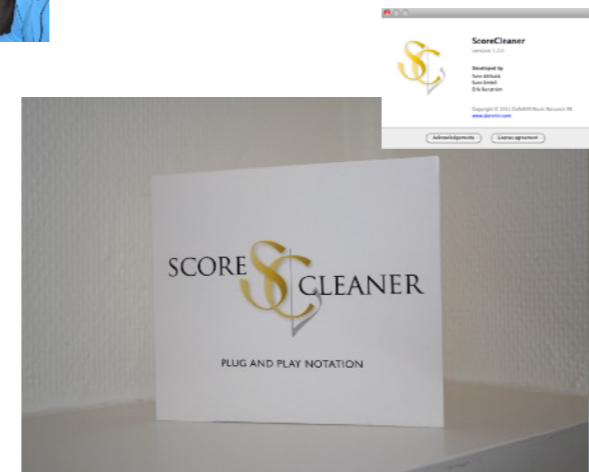
Business Coach

the Business Plan

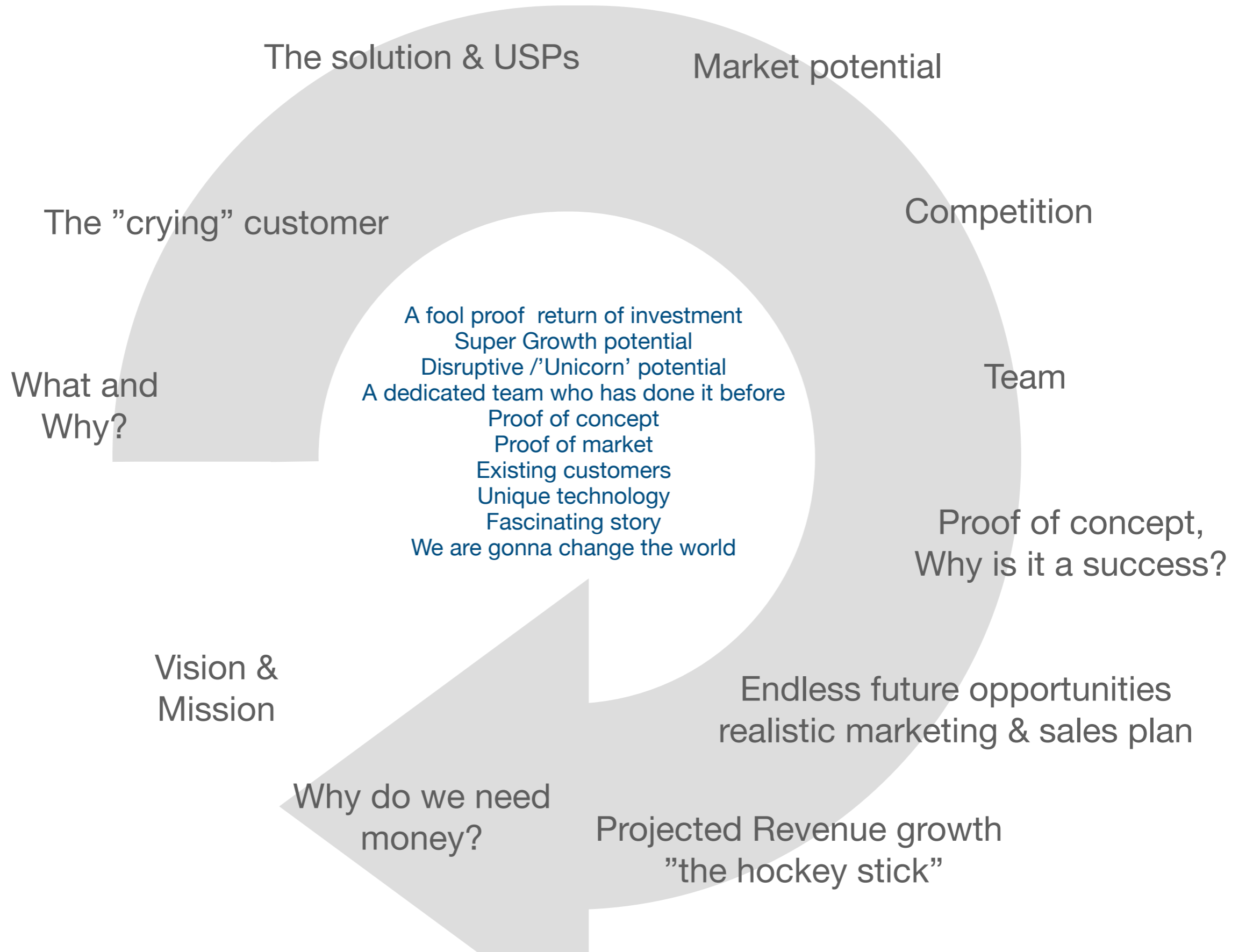


Release a product within 6 months!

and YES we did!



# the Business Plan - the sacred slide show



## The Ansoff Matrix



Performance

Disruption

## Find your own unique Blue Ocean

Red Ocean Strategy

VS

Blue Ocean Strategy

Compete in <b>existing</b> market space.	Create <b>uncontested</b> market space.
<b>Beat</b> the competition.	Make the competition <b>irrelevant</b> .
Exploit <b>existing</b> demand.	Create and capture <b>new</b> demand.
<b>Make</b> the value-cost trade-off.	<b>Break</b> the value-cost trade-off.
Align the whole system of a firm's activities with its <b>strategic choice of differentiation or low cost</b> .	Align the whole system of a firm's activities in <b>pursuit of differentiation and low cost</b> .

**Who is your customer?**

**How will they learn about your product?**

**How are you going to make money?**

**Who do you need to partner with?**

# Becoming a StartUp - Getting help from the Business Incubator



Funding

Recruiting

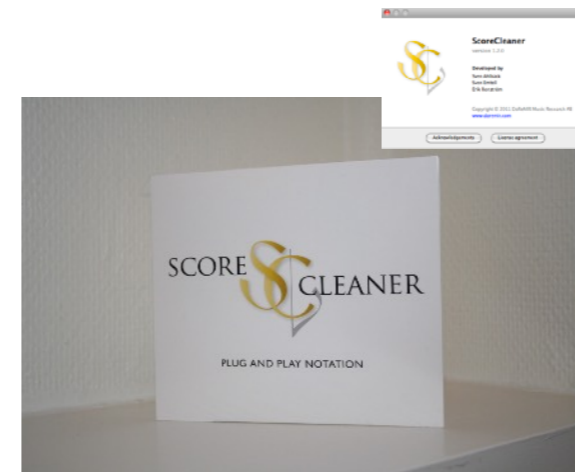
Office Space in a Startup hub

Business Coach

the Business Plan

Sales & Presentation training

The Business Angels,  
Loans, Grants





# From Angel investment to Venture Capital

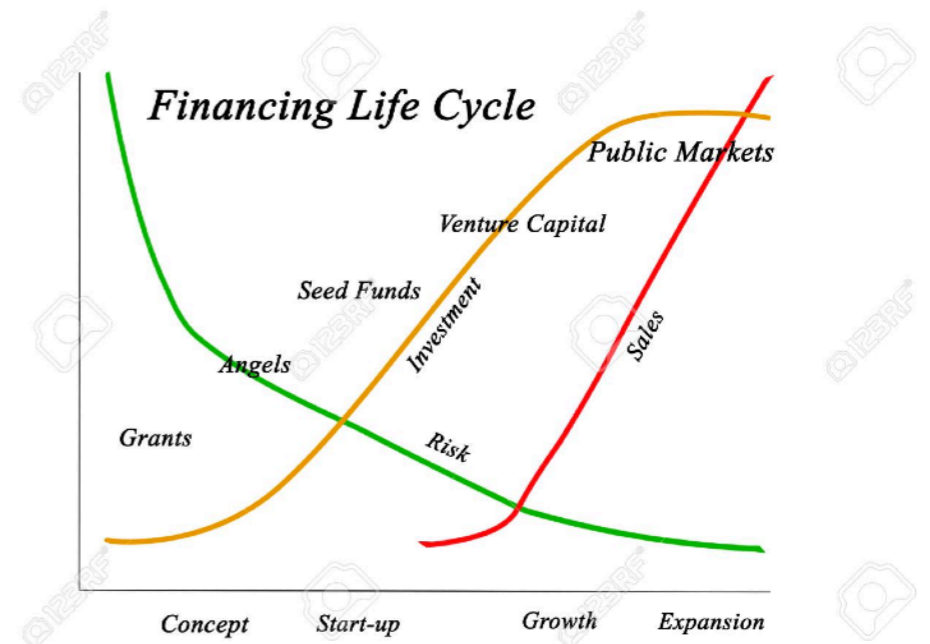
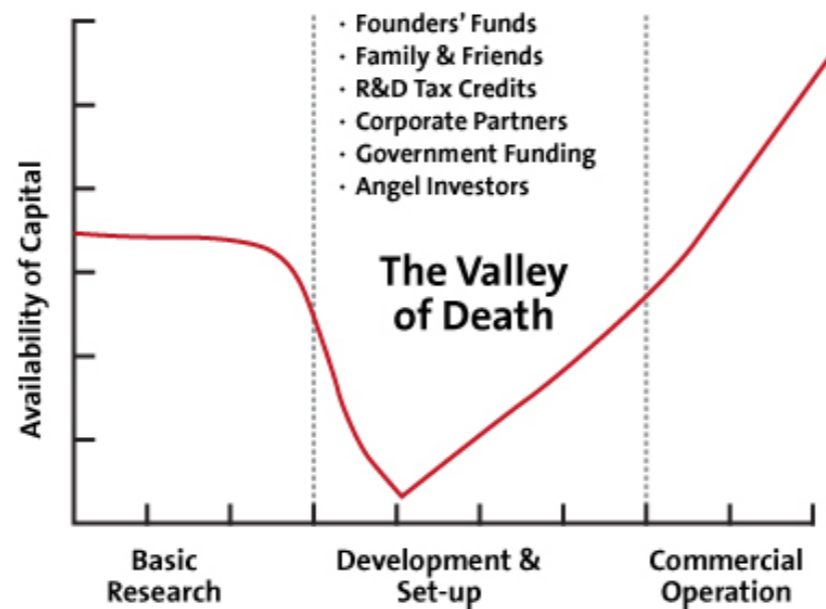
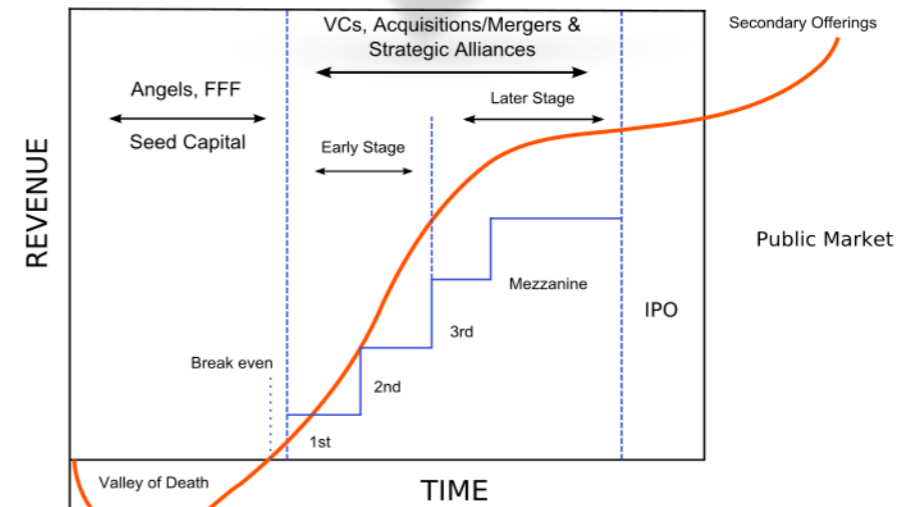


Angel  
or Devil?



**Don't forget:  
Innovation grants!  
Business loans!**

**Startup Financing Cycle**



# Becoming a StartUp - Getting help from the Business Incubator



Funding

Recruiting

Office Space in a Startup hub

Business Coach

the Business Plan

Sales & Presentation training

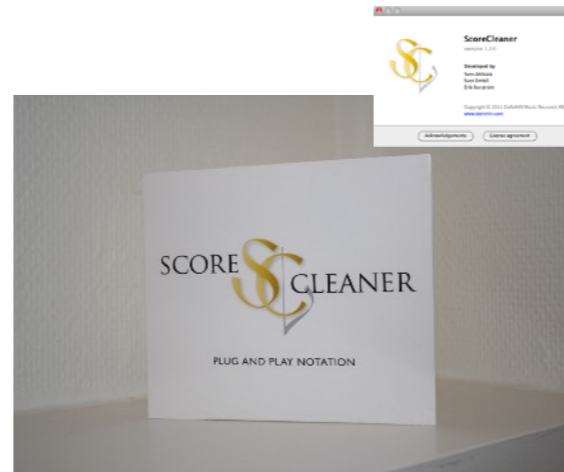
The Business Angels,  
Loans, Grants

Focus group studies  
& Testing

UX, UI, Distribution, Packaging

Release

**Release!!!**



## Now what?

selling....

takes time....

and effort....

and time....

and effort....

and since I am not a salesman....

growth is slow....

## Customer feedback



- Fantastic, but how can I click in the notes one at a time?
- What is a MIDI keyboard and how does it connect to a computer?
- This is true magic! This has changed my life!

**User feedback puts technology to the test!**

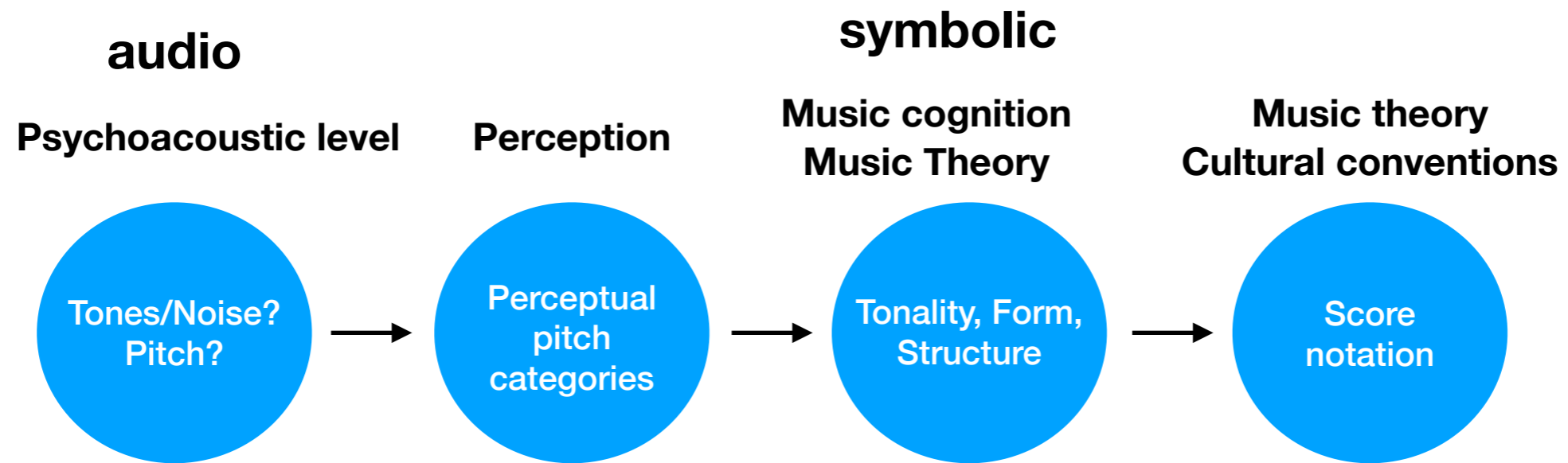
- When does it come for Linux?

**-> Learning, purpose and Ideas!**

- I cannot play piano, I would be using it if I could sing!

- You have released my creativity! If you were around in Beethoven time, he might have had time to finish his symphony?"

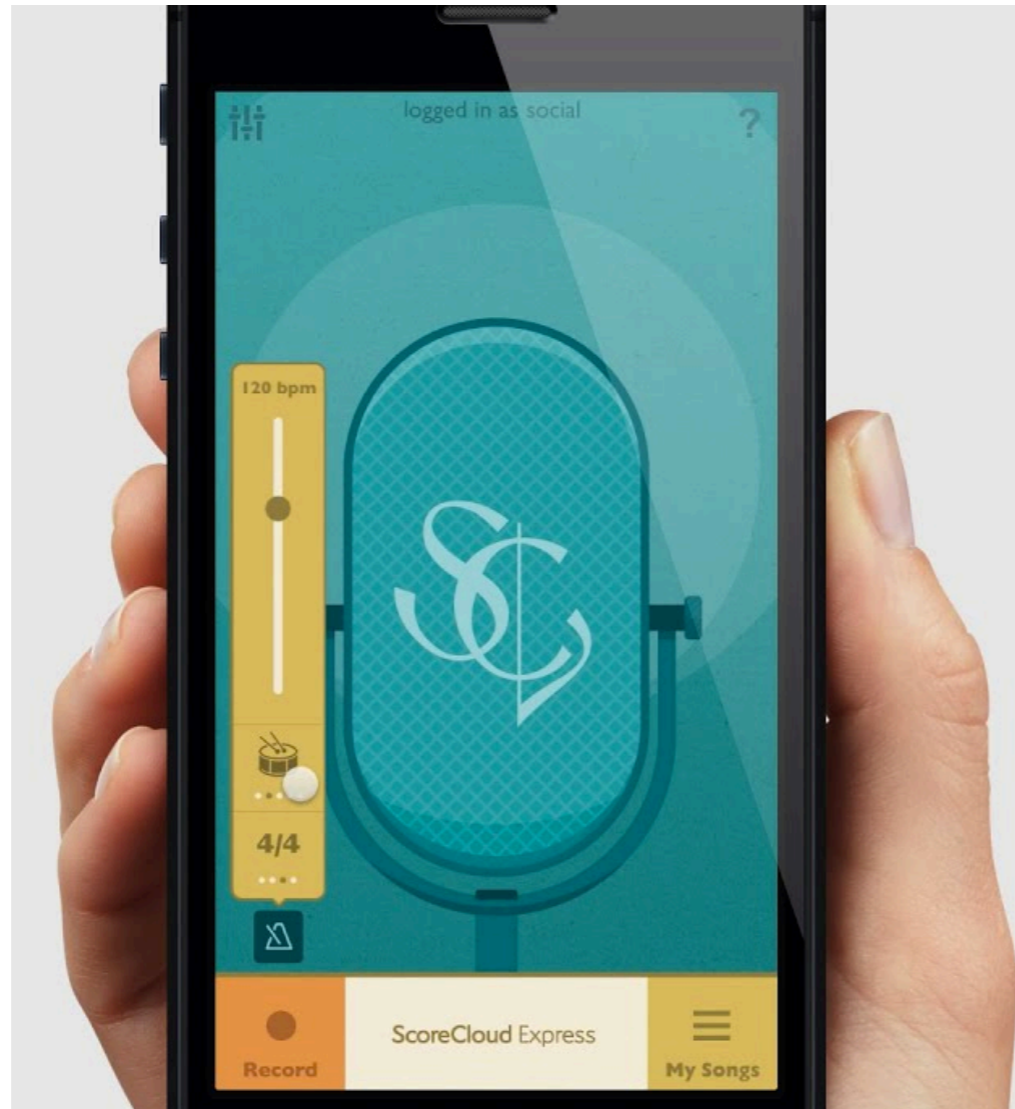
**User need -> A practical MIR task:  
Transcribe a sung melody  
into a musical score**



**A technology challenge**

# A Design Challenge - Simple but Powerful UX and UI

## How to make it easy enough for everyone to use?



Revert 'O sole mio Edit Score Done

Title	b <sup>b</sup>	?:	3/4	♩ = 96
-------	----------------	----	-----	--------

♩ = 120

F

Ma n'a - tu so - le

C

chìù bello, oi - ne,

C7

'o so - le mi - o sta nfron - te a

F F7 B<sup>b</sup>m

te' 'o so - le, 'o so - le

F F/D C

Play Notes Pickup Timing

ScoreCloud

# A random article goes viral...

...and the app goes global -> ≈ 1 Million Downloads in 133 countries



Technology | Science | Culture | Gear | Business | Politics | M

## App transcribes your shower singing into musical score

By OLIVIA SOLOM Thursday 8 May 2013

A team of music researchers has developed an app that instantly notates a tune that you sing into a mobile phone's microphone.

ScoreCleaner Notes "listens" to the melody and then writes it out as a musical score, letting you instantly share written music either through social media or email without needing to know how to read or write music. It was developed by a team at the KTH Royal Institute of Technology in Sweden.

Forbes

May 6, 2013, 10:46 AM EDT

## New App Allows Anyone To Create Musical Scores By Humming Or Singing, No Instruments Required

Reuven Cohen Contributor @ Tech  
I focus on disruptive trends in technology and cloud computing.

This article is more than 7 years old.

What happens when a fiddle playing professor at the Swedish Royal Academy of Music and expert in music cognition and a bass playing computer engineer get together? In Sweden, the answer is a ground-breaking new music App.

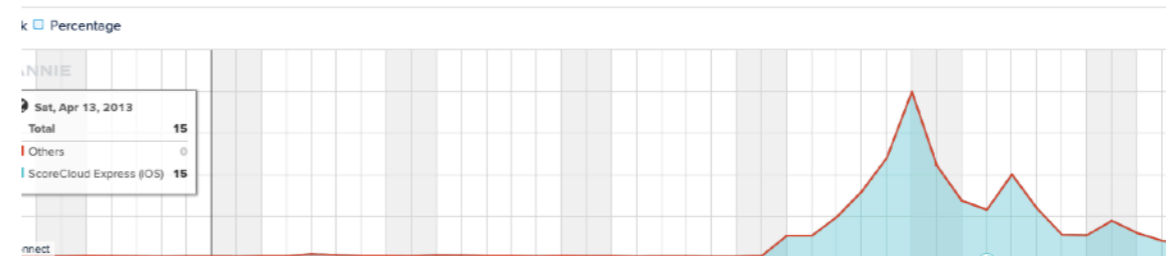
Every now and again I stumble upon a new App that impresses me, I admit that lately this has become much harder to do. But recently a new App released by a researcher from KTH Royal Institute of

CNN BUSINESS Markets Tech Media Success Perspectives Videos

Is this 'Google Translate' for music?  
CNN

Featured on

WIRED Forbes  
CNN SBS  
The New York Times

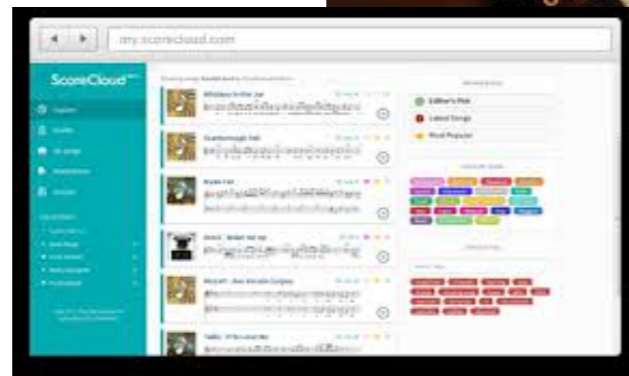


April: 10 per day

May: Wired Japan -> 4000 per day



# ScoreCloud<sup>4</sup>



- "Fantastic, but how can I click in the notes one at a time?"

Thanks to EU grant Horizon 2020 SME instrument Polyphonic Audio to Score Transcription



- Become inspired by users and face their music!
- [Sometimes] it feels like you are contributing
- Leave out the Academic quarreling, career building and greed
- Concentrate on results and don't get stuck with formalia
- Be your own boss

Collaborate!  
Brilliant technology does not make a product!



- You need to make money to survive and you need to work on that
- There is so much else in business than developing technology and research - and it is not always fun
- You never know if your business is around six months from now
- You have to please business devils, investors and your customers
- Where are the students and why can't I publish?

Research to Business?