this place seems like make-believe or

perhaps the fever dream of a design

blogger no one in their right mind would

build a hotel in a forest and stick the

rooms up in some trees but then again it

sort of fits perfectly ah because this

is Sweden and the treehouse Hotel booze

is sweet its nature fornicating with

functional design and creative thinking

this is the UFO and really this is why

we came to Sweden to get Wi-Fi out here

from Stockholm to the Arctic Circle

Swedes have pumped out dazzling tech

infused products to put a new twist on

what it means to be modern entertaining

and useful on this episode we're going

to find out how this tiny nation ended

up as perhaps Europe's premier

technology power

what's the secret that Sweden figured

out that other countries seem to have

missed because there's no question that

these Swedes are up to weird and

wonderful things want proof we'll check

out a face whopping robot pretty awesome

get up close and personal with a turbine

and that would be kind of equivalent to

a new clock and pound cinnamon buns with

Spotify is Daniel Eck you were going to

clubs down and I was thrown out Bhaskar

Silicon Valley may be home to some of

the biggest tech giants in the world but

it's being challenged like never before

crazy tech geniuses have popped up all

over the planet making things that will

blow your mind my name is Ashley Vance

I'm an author and journalist and I'm on

a quest to find the most innovative tech

creations and meet the beautiful freaks

behind them hello world okay here's what

you probably know about Stockholm it's

beautiful it's full of gorgeous

unassuming people and it's almost

disturbingly clean what you don't know

about Stockholm is that outside of

Silicon Valley it's the world leader in

fostering tech addiction Spotify Skype

and the makers of Minecraft and candy

crush all got their start here

the Swedes these supposedly cool fashion

challenged people know how to tap into

our desires and make simple things we

can't escape I started my journey at

epicenter a nerd lounge located in the

heart of Stockholm any place trying to

establish its tech cred needs a spot

like this people come here to fiddle

with their robots hash out their techno

utopian fantasies over beer and if

they're totally nuts insert a chip

underneath the skin on their wrists that

lets them open the epicentre door hello

dad

my name is Fahad about those robots

my reptile brain is telling me that this

thing is alive and then my intellect

sells me no I know it's just a piece of

plastic and some software we've stumbled

upon something really super interesting

this is fur hat a promising stab at

trying to make mechanical creatures and

computer interfaces appear and act more

like humans hi my name is Ashley hello

Ashley nice to meet you I am a socially

intelligent robot it's nice to meet you

as well

nice shirt thank you we want to build a

system that can interact very fluently

with humans understand their social

signals their emotions their attend

attention States there's a phenomenon

known as the uncanny valley

it's that queasy feeling you get when a

robot or computer interface looks real

but not real enough the brains behind

Ferhat these two hardcore academics

think they're on their way to solving

that problem and making robots less

nauseating we come from a background of

human human communications on how humans

interact with each other is the social

layer that is on top of the typical AI

if they can push the technology forward

Ferhat could end up as the face of Siri

or Amazon's Alexa it might keep lonely

people company do you think I look good

or be the thing you yell at when

checking in for a flight at the airport

can you walk us through like each little

piece that is main piece here she's got

a hat and a wig and a skull and a mouth

as far as robots go fur hats design is

really simple it's as easy as taking a

mask on and off and then the mask is

magnetically attached so you can unplug

the mask and then you can attach the

different masks it's front response to

it and then it needs to be calibrated so

that you can get the right yeah I do

want to see the alien baby what did you

say

there is a facial animation system you

know like the ones you have in games an

animated movie

yeah so it's all software based and then

we use a micro projector to project that

animation onto a master you get very

accurate eye movement gestures facial

expressions lip animation I can look

like a woman and sound like a woman like

an avatar that's level but I think the

world has been really waiting for robots

at home to interact with Tokyo to see

them in a human natural habitat where we

don't see any robots at the moment one

day fur hat might read bedtime stories

to your kid I'd say it's at the

nightmare stage of that journey but the

product has gone on sale for use by

universities which are busy tweaking it

to ensure sweet dreams in the years to

come you were boring why would you say

that to me you would look strange or to

sling insults and handsome TV hosts how

about a beer coming up

I do the fika thing with Spotify as

Daniel a it's not to get for help and

we'll break the Swedish code of conduct

that when I drink it

Sweden's rise as a tech power did not

happen by accident the country's

advanced industrialization is due

largely to Swedish invention like the

dial telephone and to high standards of

Engineering starting in the late 1990s

the government made a huge investment in

broadband laying fiber optic cables

throughout the country then it began

subsidizing pcs so every citizen could

have a modern computer with a superfast

internet connection but this wasn't all

about making a sterile nerd Factory the

Swedes also designed their education

system to emphasize creativity and

experimentation and to mix the Arts and

Sciences one curious offshoot of the

social engineering was that Sweden

created a nation of pirates that

generation of tech infused youngsters

set out to pirate software music movies

anything really and did so with

astonishing skill file-sharing services

like Kazaa and utorrent started here and

so did an entire political party

literally called the pirate party one of

the Pirates was this bald beauty

Daniel lack Iran Hey yes let's see you

back ran utorrent and ended up on the

wrong side of the music labels then he

pulled a 180 and decided to try and

become the music industry's Savior by

starting a new less Deeley company

Spotify it was Swedish simplicity the

turn Spotify into a huge hit people

could find stream and download songs

with such ease that neither consumers

nor the labels could resist the service

almost every morning X stops off at

saternus a trendy cafe in the oyster mom

neighborhood of Stockholm here he

engages in fika a Swedish snacking

ritual that takes place a few times a

day should we dig in

dig in please like him it was good it's

it's um seems more wholesome than like a

Cinnabon yeah so you got it set off on

the path of doing tacking music so

really the only thing that was important

in my family was that you'd learn how to

play music I got a guitar when I was

like three four okay but yeah I got the

computer when I was like five and for me

like in the beginning it was really all

about games just fun playing from that

point I kind of realized like hey these

games are boring how hard would it be to

try to fix the game yeah and so I

started coding games when I was seven or

eight there's some point I it's kind of

amazing that you've been on this

trajectory yeah you know your whole life

yeah I've never had a normal job when I

grew up like I didn't realize how you've

made money starting something yourself

we're investing money or life that was

just the totally foreign concept outside

of Silicon Valley Sweden has the highest

per capita number of unicorns which are

startups valued over 1 billion dollars

there's a tension that comes with all

this new money and fame like much of

Scandinavia Sweden operates under a

cultural code of conduct known as Ianto

law it's a philosophy that demands

people not think too highly of

themselves I was wondering if people

recognize you out on the street um yeah

I mean they do but because this is like

Sweden no one really comes up except if

it's like 10:00 p.m. and they've had a

beer or two cut to 2016 and this way of

living finds itself in conflict with

tech millionaires boozing it up at clubs

and hyping their tight

laughs AK knows the situation as well as

anyone by the time you're 21 I mean you

were a millionaire especially right

because you had sold a couple businesses

and now I'm very well for yourself and

then it sounds like you went through

sort of a period where I don't know if

showing off is the right word but you

were living oh yeah going to clubs and

and I was driving past cars when I look

back to it I'm sort of almost ashamed of

myself because it was like you know it

was today I realized there was a huge

sort of period of insecurity there's a

lot of fun don't get me wrong but it's

it's like not Who I am and I never know

like as an outsider if we make too much

of all this but this idea that you don't

want to stand out and yeah I'm Sweden or

Scandinavia and you do stand out what

yeah when you start making billions

dollars a little hard yeah but it is

changing I mean if you walk around in

the city now like I see like Ferraris

Lamborghinis like there's quite a lot of

that here which is not really part of

what the fabric of how it used to be to

really contemplate yann to LA I took

part in another Swedish tradition known

as standing pensively against a wall

completely aware that I was being

photographed for my own TV show we're

supposed to pull your head

here are some of the rules of yan to lie

you are not to think you're anything

special you are not to think you're as

good as we are

you're not to think you're smarter than

we are you're not to convince yourself

that you're better than we are

you're not to think you know more than

we do not to think you're more important

than you're not to think you're good at

anything not to laugh at us you're not

to think anyone cares about you you're

not to think you can teach us anything

ah

that was refreshing with the

brainwashing portion of the program over

it was time to live a little we decided

to get out of the cold dine at a

traditional Swedish restaurant and then

hit the town

it'll be just gonna be getting yours I'm

Ashley thank you Henrik all right Maria

oh the promise country I'll tell you

this about yah Allah it gives way after

a few cocktails what to mix this with

the lemon and the old smelly I don't

know what it's cold in Sweden economy

fish

yeah it's now we're up steps yeah nah

Jerry that's whatever gets me cuz

they're just yeah my food is that out

and that's when the other part of the

Swedish character the friendly joyfully

lubricated part goes on full display

hey ho vote a snail fun marine attended

go near the end of the night it was time

for my famous disappearing cigarette

magic trick I guess it and my man bun

needs some work coming up I'll find out

where my embarrassing photos live this

is where all the action happens and beat

a turbine named Esther

as vibrant as the startup scene is in

stockholm sweden x' technology muscle

lies in the northern part of the country

had 560 miles up from stockholm and

you'll end up in lou leo a picturesque

city of 70,000 people wedged between the

gulf of bothnia and the arctic circle

for centuries

lou leo has been a cultural an economic

hub of this region but what really has

Lou Leo buzzing these days is the

arrival of Facebook which opened a data

center on the outskirts of the city in

2013 at 300,000 square feet it's one of

the largest computer centers ever built

it's the kind of place you need a bike

and a picnic lunch to explore fully and

while you're on that picnic lunch you

can take a selfie and post it here go

it's nice to see you again I actually

want to come to do thank you and welcome

to Facebook you'll Sjogren's has managed

the operations at the Lully OData plant

since it opened

he offered to show us the guts of this

beastly building

some people think the cloud is actually

a cloud

for others it's an ethereal mystery the

place where your photos and documents

get sucked to and hang out this though

is the cloud

at least the physical manifestation of

it it's thousands of servers and storage

systems working together to hold our

information this is where all the action

happens this is where all our photos are

like this is really where Facebook is

actually running look around see over

there it's a picture of a young Ashley

Vance who thought that going blonde

would be a good idea and that one

it's a lingering poke from your creepy

ex and right there is an inspirational

meme helping lift people's spirits where

does my mom find all these amazing

quotes and because we've built the

infrastructure to be so redundant we can

basically pull any server and it's not

going to affect any end user in in any

negative way so we pull one out here

okay so we're going to take down

Facebook a typical Monday measure but

it's all built to be as energy and

cooling efficient as possible so there

are no fans at all on this one as you

can see they're sort of it's just

working on the pressure difference that

forces here through I think for most

people who've never been to a data

center they're usually like these big

sort of pizza box things with tons of

fans and moving parts going on them and

you guys compacted everything down if

the industry in general started adopting

a lot more of this thinking it could

really change the whole industry and not

just Facebook a couple of corridors

we'll go through a typical data center

relies on massive air-conditioning units

to pump cool air onto tens of thousands

of computers you can't pay for this kind

of wind blowing lucky Facebook is too

hip for that

ketchup it uses cool arctic air to keep

its photo friend and like machines from

melting down this whole place lends

itself to Sweden's meticulous attention

to detail and design the building is an

engineering marvel that treats air like

a pampered Corgi poo the air gets sucked

in cleaned watered and then sent on its

way via physics with the building

pressure pushing the air down onto the

computers since facebook gives away its

service for free this place needs to

operate as smoothly and cheaply as

possible to minimize the cost of each

click off camera you'll readily brags

about Facebook's cheap clicks on camera

Yan Tala we've kind of been dodging

around the point I mean this may be the

world's was the fish power efficient

data center is most likely one of the

most efficient ones damn Swedish modesty

it's not just free cold air that brought

Facebook to the Arctic Circle the social

network also came for the cheap reliable

power produced by Sweden's vast set of

hydroelectric dams

starting in 1910 the Swedes began

building a network of two dozen

hydroelectric dams along the Lulay River

today the dams provide more than enough

power to meet all of northern Sweden's

needs so now we will start to urinate Lu

the river on Lu the river power Rick

Abramson and Kristi Lungren

worked for Vattenfall the energy giant

that runs the dams they were kind enough

to take me on a road trip to see up

close how these amazing machines work

these guys insist that it's wonderful

living in the great frigid north they

can check out the Northern Lights from

their hot tubs spend months in total

darkness and hunt bears and moose so

Rick did you already go moose hunting

this year then the small hunting ground

where I'm caught there's only one grown

up in one cough and the first morning 30

minutes into the hunt they shot the big

one nothing's over and everyone's done

walk me through again like how many dams

there are a long sister will do that we

have 15 power stations along this river

of course with great power comes great

responsibility

and you know stuff to placate people

they care about nature and fish we are

one of the Lord you should have fish

breeders in Sweden to compensate for the

fact that we built all the power

stations because they the settlement

cannot sort of pass through the river

system now so the energy company breeds

sailing yeah we do how many would you

have to put back in for yeah in the Rue

de Rivoli put back close to half a

million every year well it used to take

hundreds of people to run these dams but

today they're controlled by two

easygoing Swedes working in this command

center from here we controlled the

complete river system 15 power stations

and we have two guys here who controls

to go complete River that's what seems

incredible raise the two people would

handle half a country's power yeah you

could essentially turn on a turbine and

shut off a turbine and so today that's

all done through software yeah on the

rest of our journey today we'll get to

go and see some of the absolutely you're

gonna see the biggest one we have in

Sweden and that would be kind of

equivalent to any other block okay yeah

I know we're 90 neutral box

Vonn fall has turbines of all sizes

some of them like this big beauty named

Esther now you see the size of it yeah

George produces much power as a nuclear

reactor there we go this is what you've

been waiting this feels like the seconds

before a shuttle loan it says really

I've been to a couple yeah how long does

it take to get up to full speed here

comes the water

standing next to one of these turbines

when it fires up is one of life's great

organ rattling pleasures the closer you

get the more manly you feel for some 250

cubic meters a second in the courtroom

after getting my organs rattled I

decided to head back to Lou leo and

decompress damn what a day it's been a

long but awesome week in Sweden somehow

we ended up near the Arctic Circle with

a campfire it's our lucky day I've been

to Sweden a few times and this trip

confirmed my previous impressions about

the country

these are pleasant people who are

remarkably good at making things

everyone wants but what's more

impressive these days is the way in

which the Swedes are embracing

technology the people here try harder

than anyone else to find a balance

between striving for a bright future

while living within their means and then

you know cinnamon buns on the next

episode of hello world we go to Israel

where I float in the Dead Sea is a

technique doeth hop in a jet and build a

space laboratory seems hard to believe

that you could do that much science and

something besides

you