

OST
Ostschweizer
Fachhochschule

OST-Gadget: a real-world business planning case study

Sample Solution: Today's OST-Gadget

M. Alberding, 07/2022

**BILDUNGS-
OFFENSIVE**
Die St. Galler Bevölkerung
und Wirtschaft sollen
zu den Gewinnern der
Digitalisierung gehören.



WIR SIND TEIL DAVON!

Executive Summary

As product for the smart factory, we propose the «OST-Gadget», a wireless charger for your phone



Market analysis

- Wireless is the charging **technology of the next decade, CAGR +29.4%**
- Wireless charging is a **key priority feature for 78% of smartphone users**, 20% own already a wireless charger
- **Compatibility** (Qi standard) and **charging speed** are key ease-of-use needs
- As **battery anxiety** is a key concern, consumers want to see wireless power available to them in more places
- Prices range from ~10-150 CHF, most products around **40CHF**

Marketing strategy

- **Digital manufacturing know-how** is our strength, our weakness is that we are not a real and competitive enterprise
- We recommend targeting the segments **OST merchandise with expected 300 chargers per year** and **OST students & staff with expected 200 chargers per year**
- We propose a **focus strategy** with **personalized design** is at the core of our differentiation, combined with **OST branding** and **sustainable materials**
- **Qi certification, sufficient wattage, and durability** are must-haves. We prefer a **compact, mobile charger**. MagSafe and/or USB hub are nice-to-have.

Marketing mix

- Physical product only – **no frills, no service**
- **We make the housing** to demonstrate our strengths in digital manufacturing
- **We buy the electronics** to avoid certification and speed up time to market
- Est. cost **variable 8CHF, fixed 50kCHF**
- We estimate a **25 CHF price**; we could still sell at market's average 40 CHF if quantities are -50% lower than expected
- Students & staff can **order online and pick up at the reception**, smart factory visitors can watch the product being made
- **Promotion** to students via **classes** utilizing the smart factory, to staff via **intranet**

Introducing the OST-Gadget

Showcasing applied digitalization



What is the «OST-Gadget»?

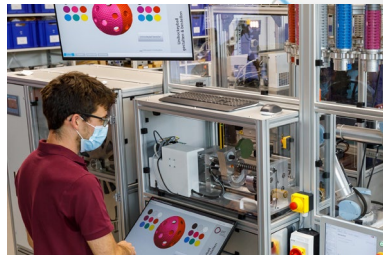
The OST Smart Factory is a real-world industrial production environment to showcase applied digitalization



St. Gallen
Sales and service.

Buchs
Product management,
electronics development,
and final assembly.

Rapperswil-Jona
Production of injection-
moulded parts.



What is the «OST-Gadget»?

As product for the smart factory, we propose the «OST-Gadget», a wireless charger for your phone



The OST-Gadget is a wireless charger for your smartphone or any other Qi-compatible device.

What is the «OST-Gadget»?

Our proposal meets all defined product requirements, our focus is demonstrating the smart factory's competencies

Useful

The product must be useful – you need to want to have it!

More than an app

The function of the product must **not** be replaceable by an app.

Sustainable

The product must be sustainable – no batteries, use of recycled materials, etc.



Representing OST

The product needs to show the competencies of OST.

Suitable for smart factory

It must be feasible to produce the product in the smart factory's infrastructure. Production of variants (e.g. multiple housing colors) must be possible. Simple assembly is a priority.

Realizable

Product cost and time to market must be reasonable.

Focus of the proposal

Market Analysis

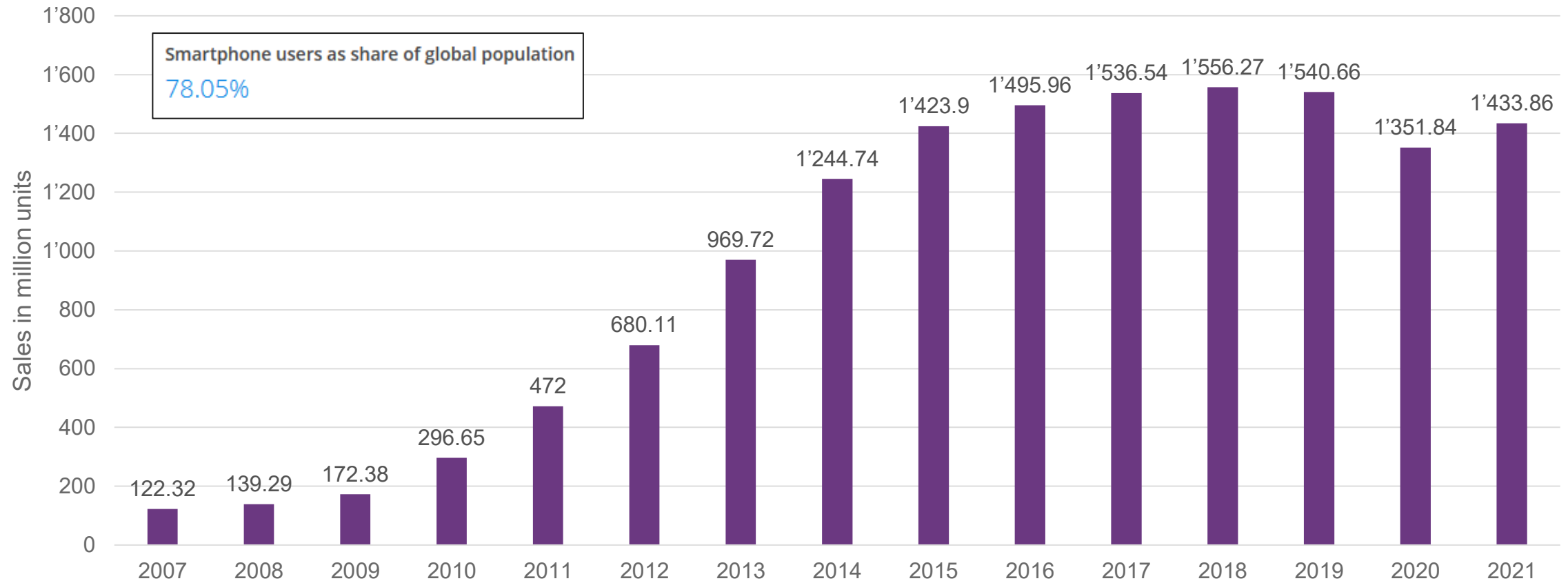
What is our environment?



How is the market characterized?

Almost 80% of the global population is using a smartphone, sales are saturating at a high level

Global smartphone sales to end users 2007-2021



Note(s): Worldwide; 2007 to 2021
Source(s): Gartner

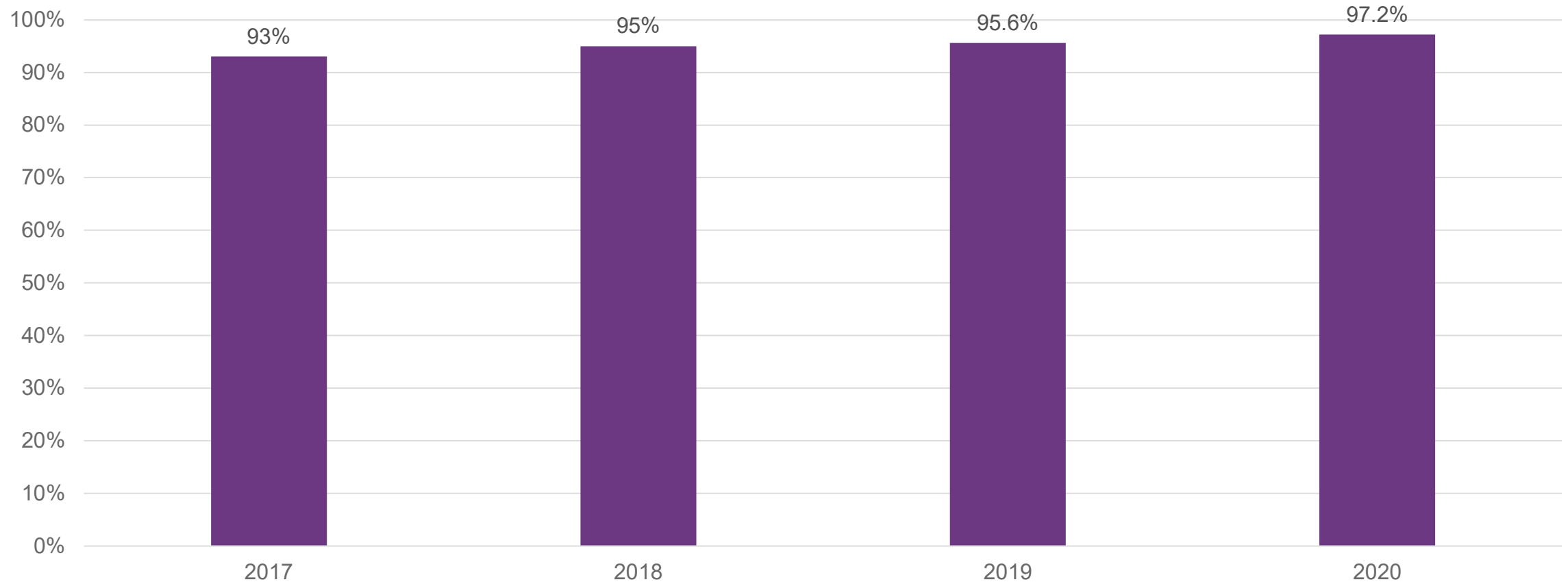
statista



How is the market characterized?

In Switzerland, >97% of the population own a smartphone

Smartphones owners in Switzerland



Hinweis(e): Schweiz; 2017 bis 2020; 2.079 Befragte; repräsentativ für alle Regionen der Schweiz
Quelle(n): Comparis

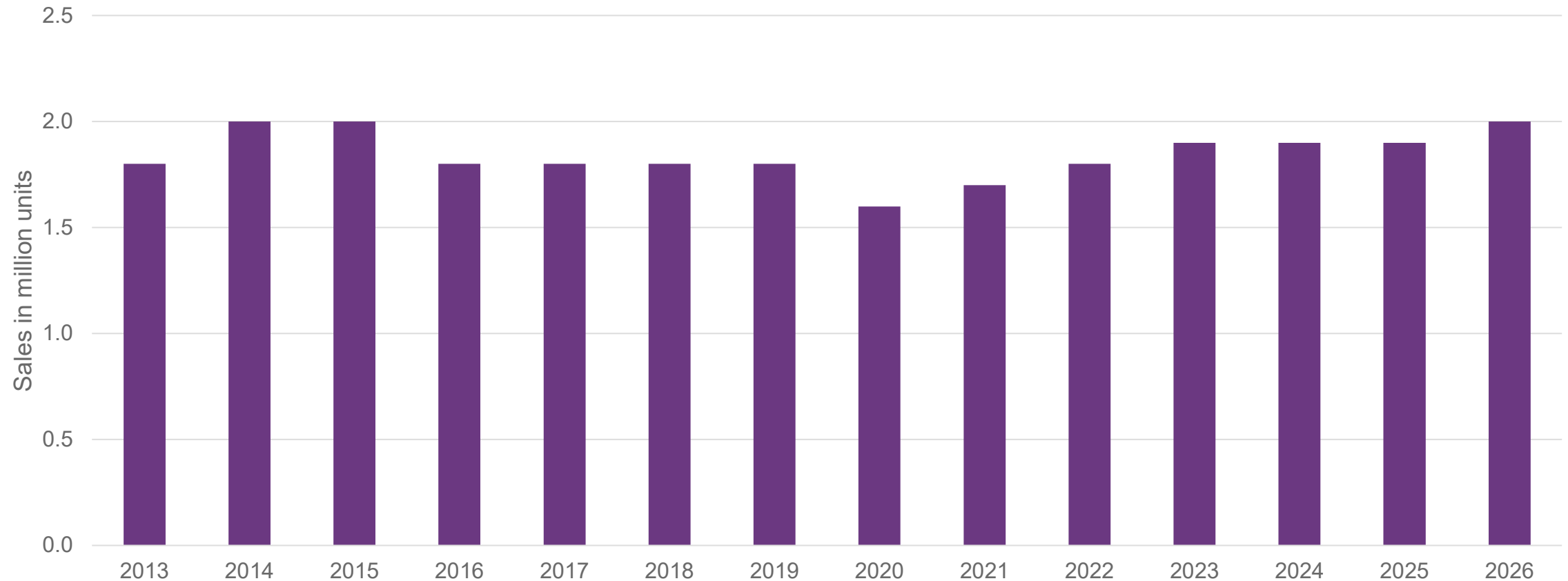
statista



How is the market characterized?

1.8M smartphones are sold in Switzerland in 2022. With 6% of the population, Kanton St. Gallen would account for ~100k.

Smartphone sales in Switzerland



Hinweis(e): Schweiz

Quelle(n): Statista; Statista Consumer Market Outlook

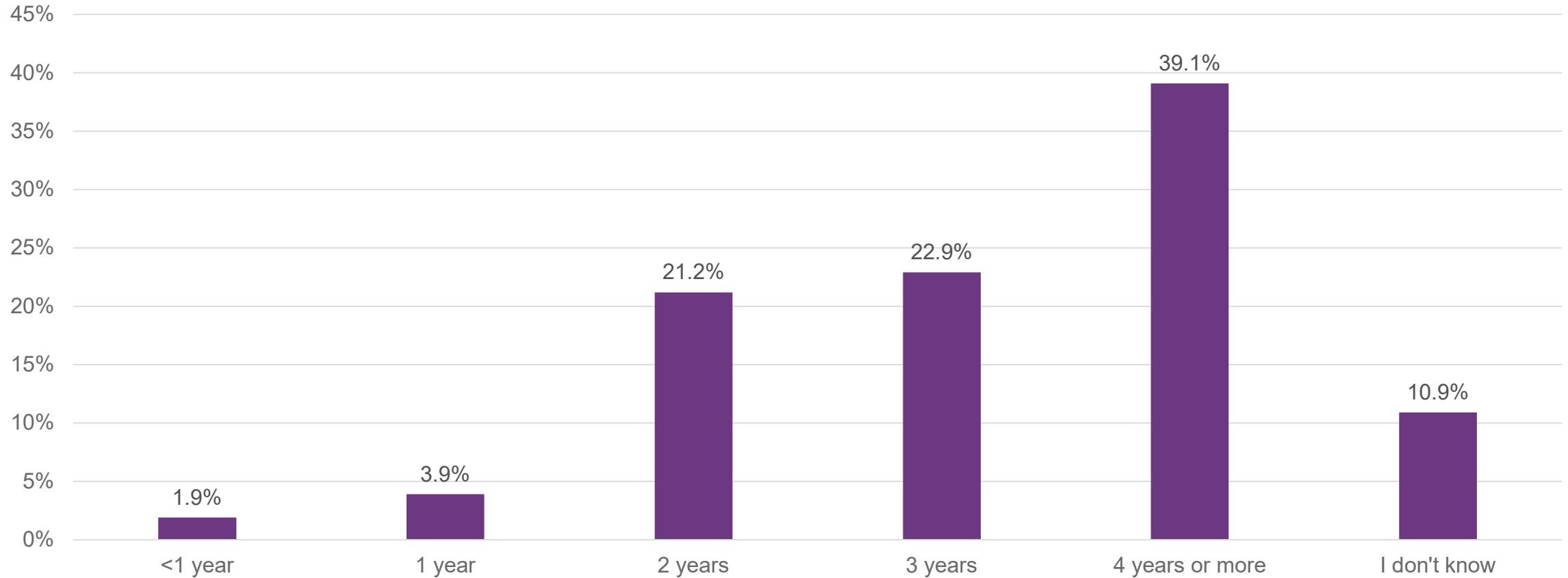
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How is the market characterized?

Smartphones in Switzerland are typically used ≥ 4 years

How long are you using your smartphone before buying a new one? (Switzerland, 2021)



Hinweis(e): Schweiz; Oktober 2021; 2042 Befragte; repräsentative Befragung in allen Regionen der Schweiz; geplante Nutzungsdauer aktuelles Handy
Quelle(n): Comparis

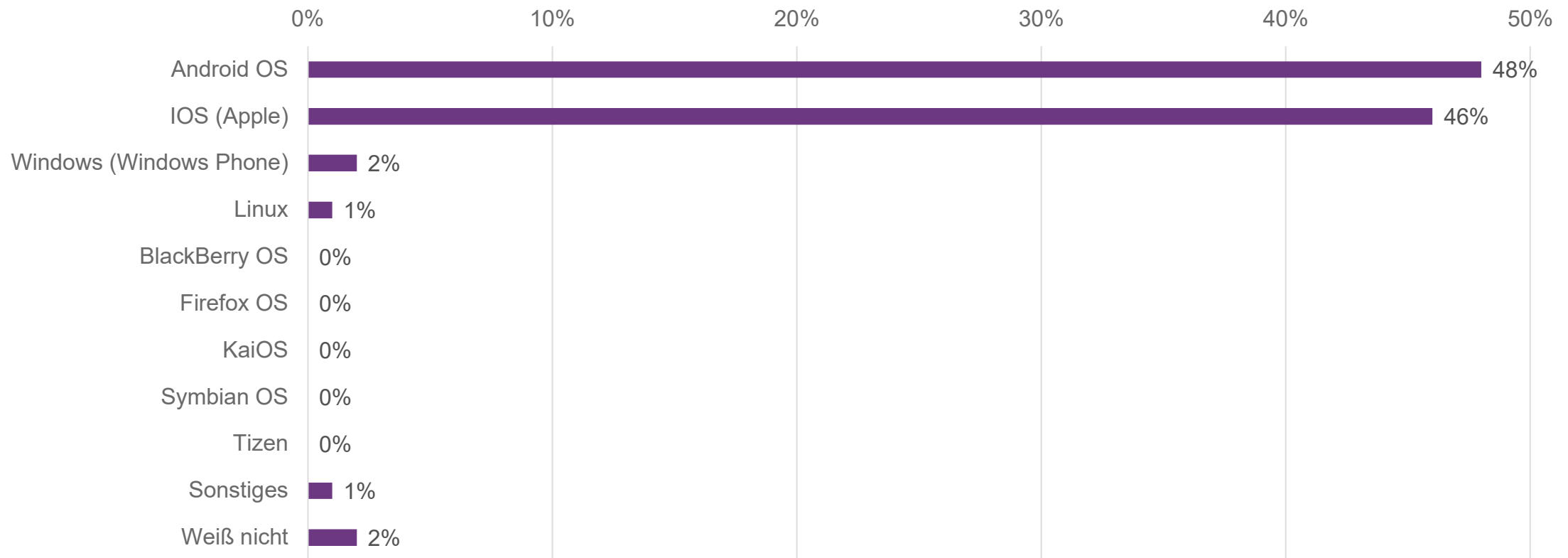
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How is the market characterized?

Android and Apple are dominating

What operating system are you using? (Switzerland, 2021)



Hinweis(e): Schweiz; 07.10. bis 22.12.2021 und 06.07.2021 bis 20.09.2021 und 06.04.2021 bis 16.06.2021 und 07.01.2021 bis 17.03.2021; 1968 Befragte; 18 bis 64 Jahre; Befragte, die ein Smartphone nutzen

Quelle(n): Statista Global Consumer Survey (GCS)

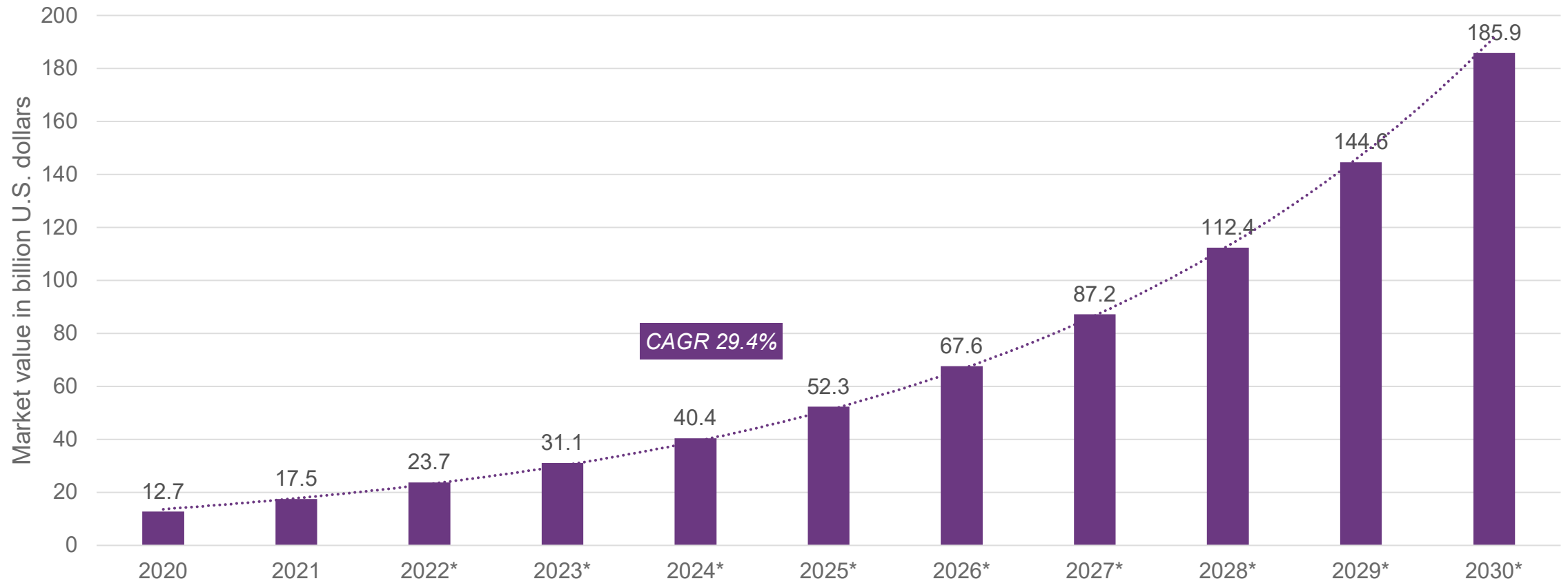
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How is the market characterized?

To charge smartphones and other devices, wireless charging is the technology of the next decade, CAGR 2020-2030 +29.4%

Wireless charging market revenues worldwide 2020-2030



Note(s): Worldwide; 2020 to 2021; * Forecast. CAGR 2020-2030: 29.4% [Read more](#)
Source(s): Next Move Strategy Consulting

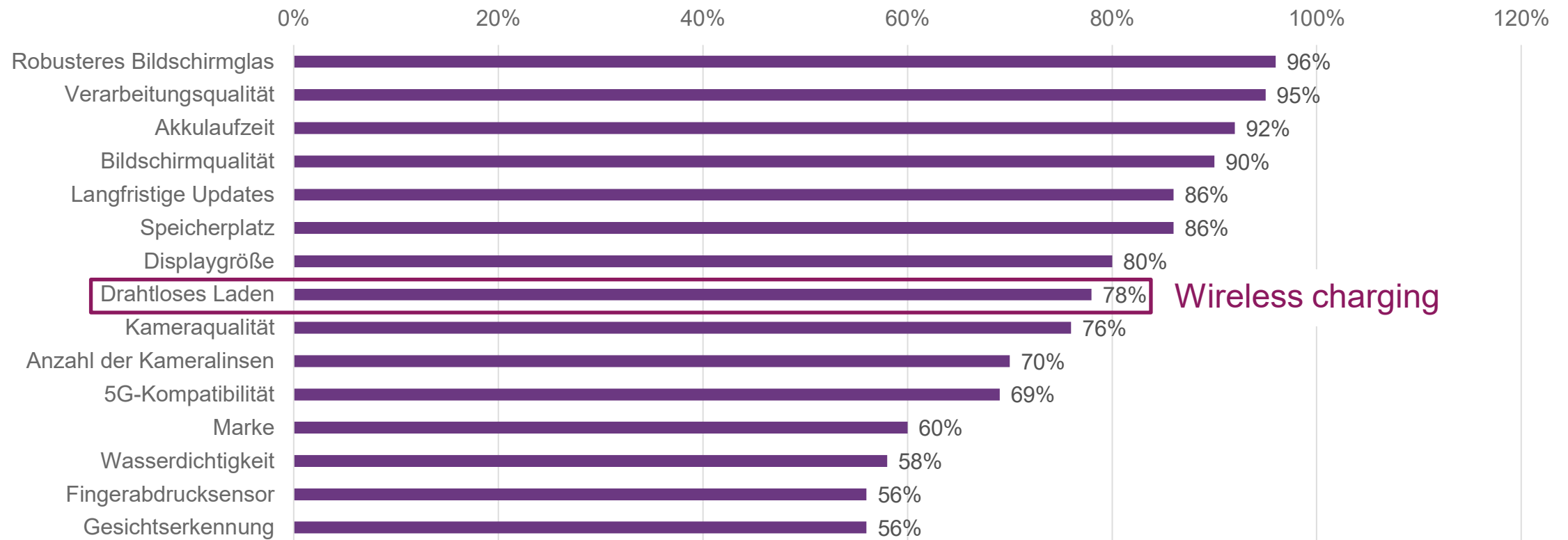
statista



How is the market characterized?

At least 78% of smartphone buyers can be expected to want a wireless charger

What features are important to you when buying your next smartphone? (2022)



Hinweis(e): Deutschland; Februar 2022; ab 16 Jahre; 835 Smartphone-Nutzer
Quelle(n): Bitkom Research; [ID_180389](#)

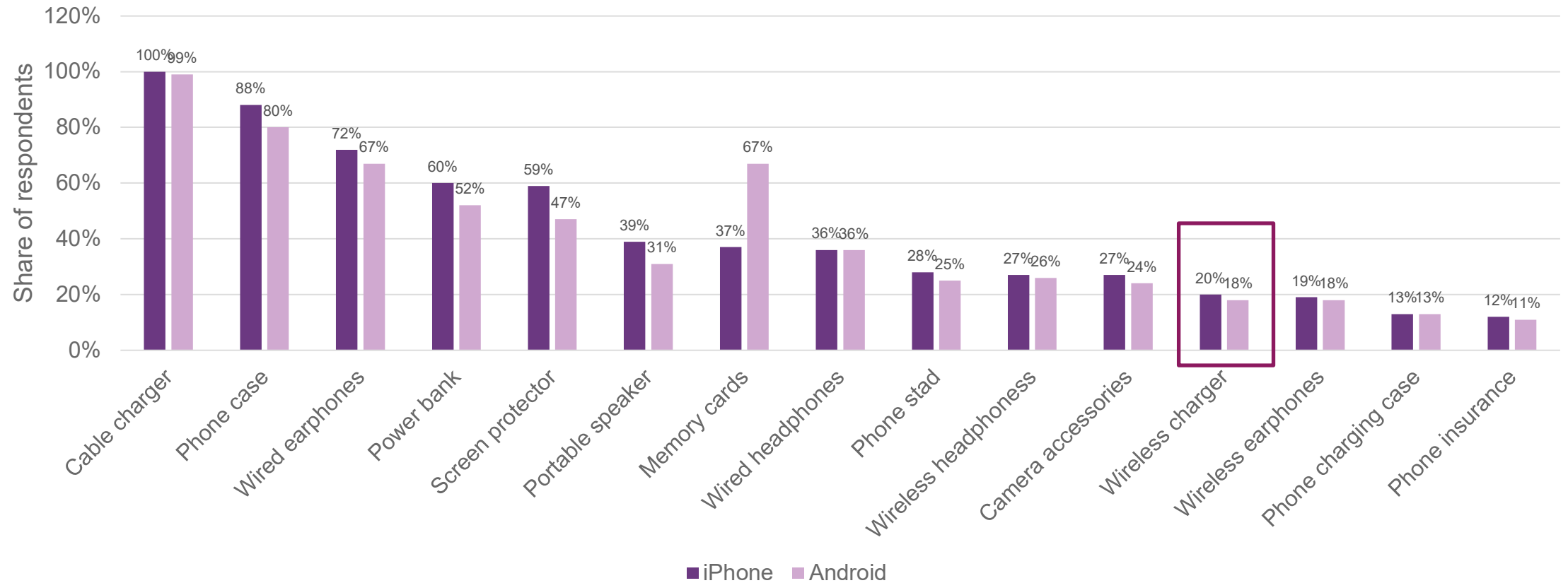
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How is the market characterized?

20% of smartphone users already own a wireless charger

Ownership of iPhone and Android accessories in Belgium 2019



Note(s): Belgium; 2019; 18-75 years

Source(s): Deloitte; [ID 1097587](#)

statista



What do customers need?

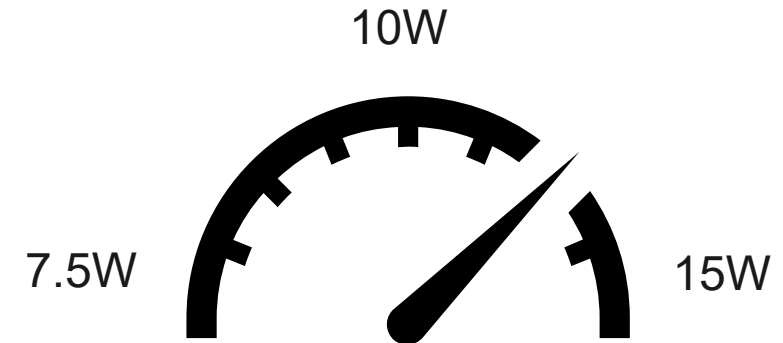
Desk research identifies compatibility and charging speed as key consumer ease-of-use needs

Qi certification for compatibility



Qi has become the accepted standard for wireless charging, allowing compatibility and safety of wireless chargers with a range of devices.

Sufficient wattage for charging speed

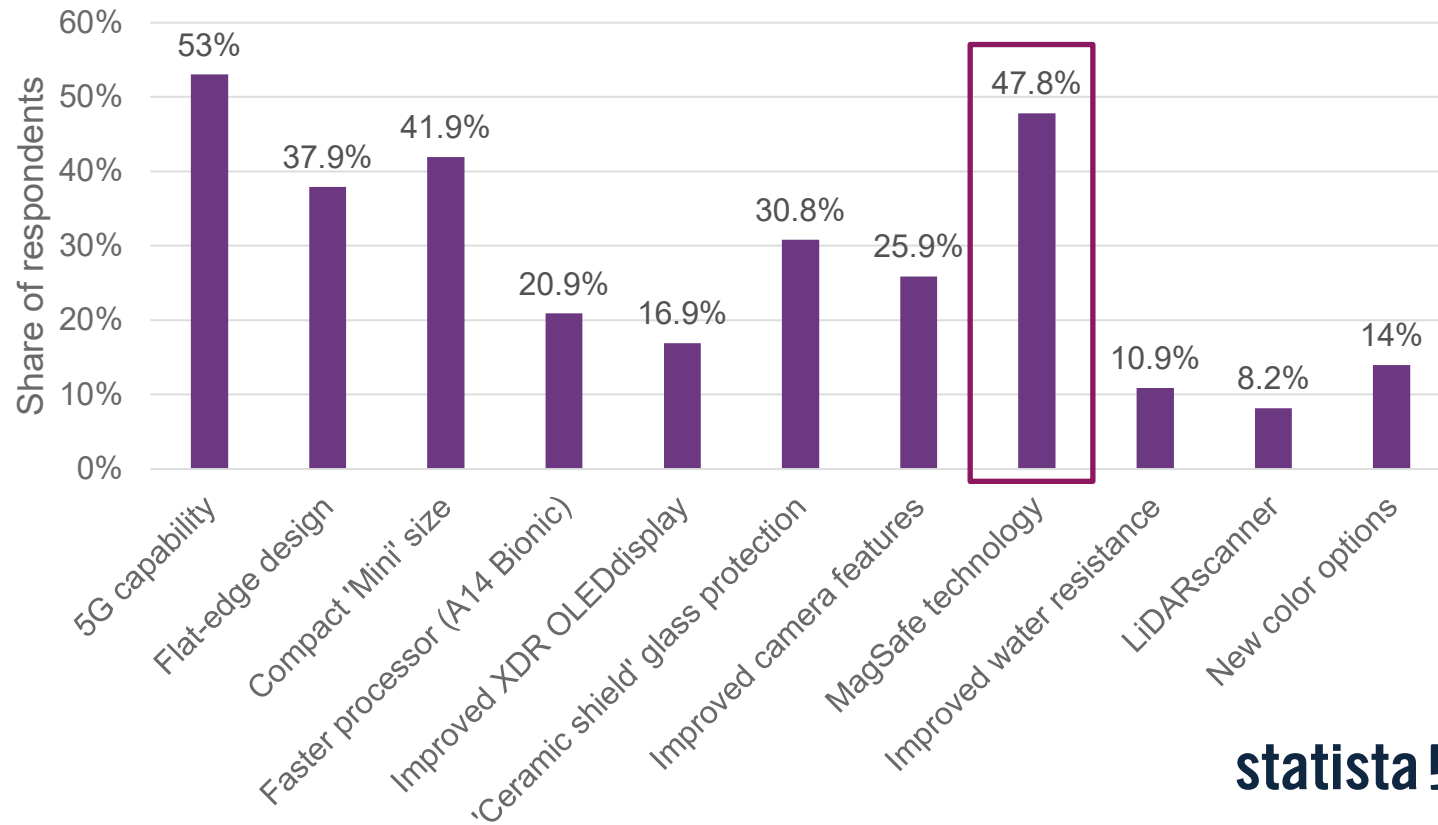


More Watts = more charging speed.
Qi wireless charging technology can transfer up to 15W.
iPhones currently capped at 7.5W (15W with MagSafe).

What do customers need?

Simple positioning is another relevant ease-of-use request, consumers welcome Apple's MagSafe feature

iPhone users most liked new features of the iPhone 12



Note(s): United States; October 18-26 2020; 18 years and older; 3023 respondents; U.S. based iPhone users

Source(s): SellCell.com; ID 1199139

statista



Source: Apple

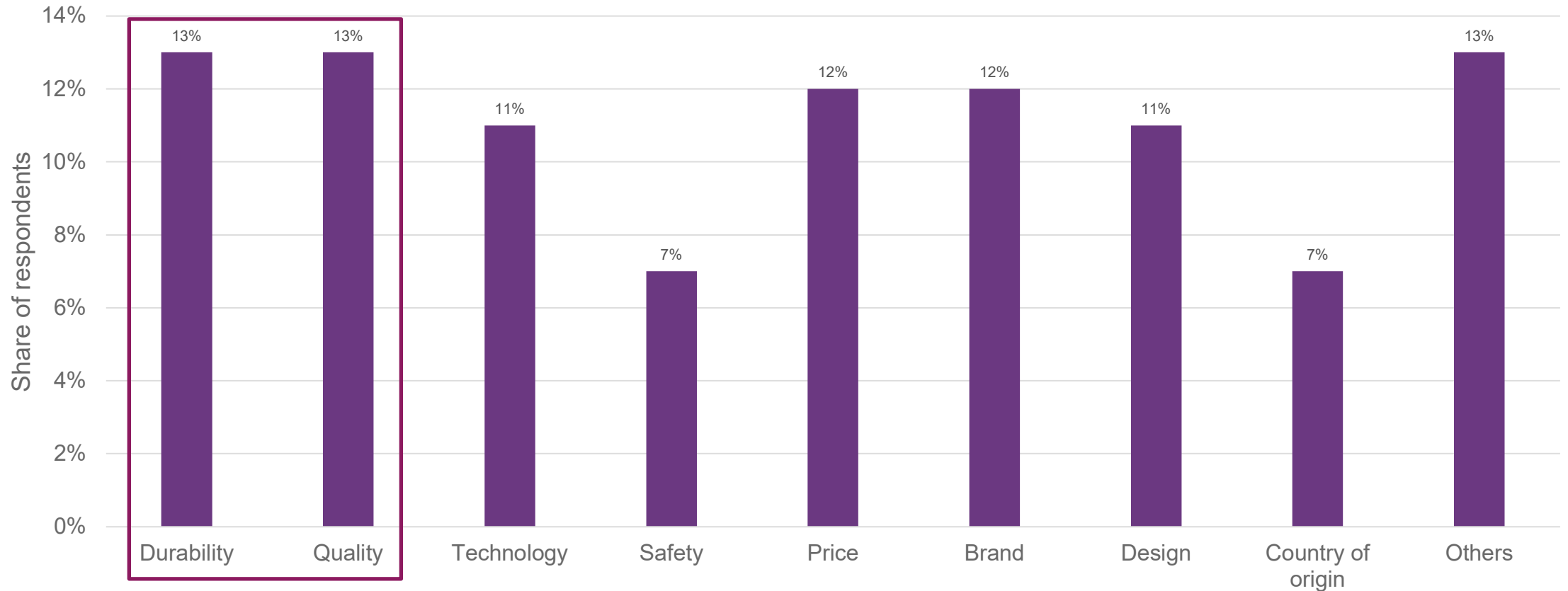
Wireless chargers need to be precisely aligned with the device they are charging.

MagSafe is an Apple standard for positioning the phone via magnets for maximum charging efficiency.

What do customers need?

Generally, durability and quality are key customer preferences for mobile phones and digital gadgets

Main attributes driving purchase behavior for consumer electronics (mobile phones and digital gadgets)



Note(s): Vietnam; June to July 2020; 1,000 respondents; among households in Hanoi, Ho Chi Minh City, Can Tho and Da Nang

Source(s): Deloitte; ID 1110932

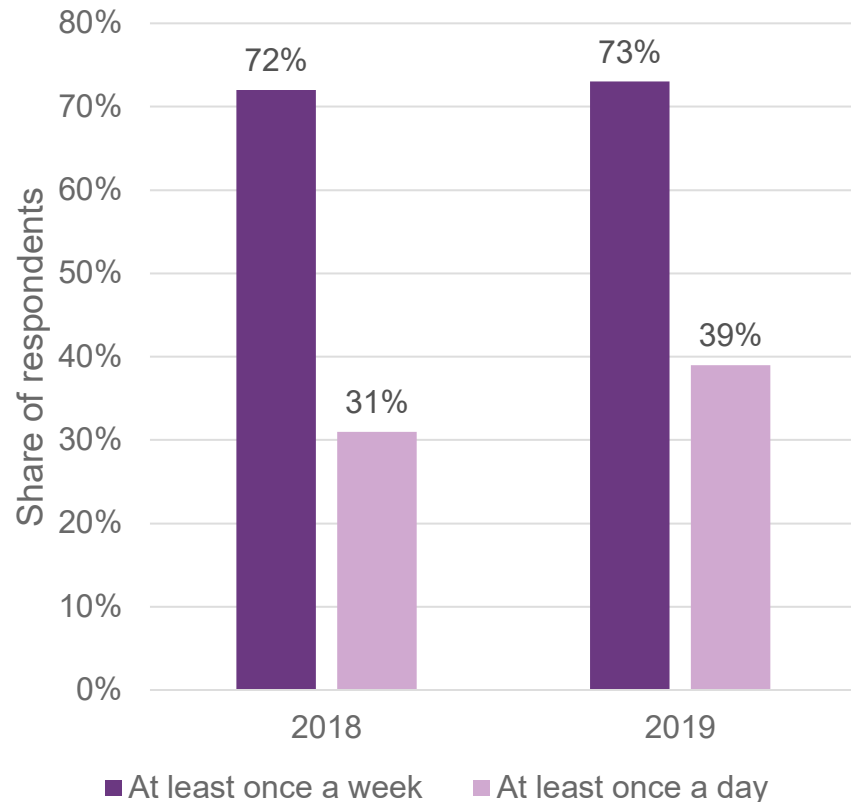
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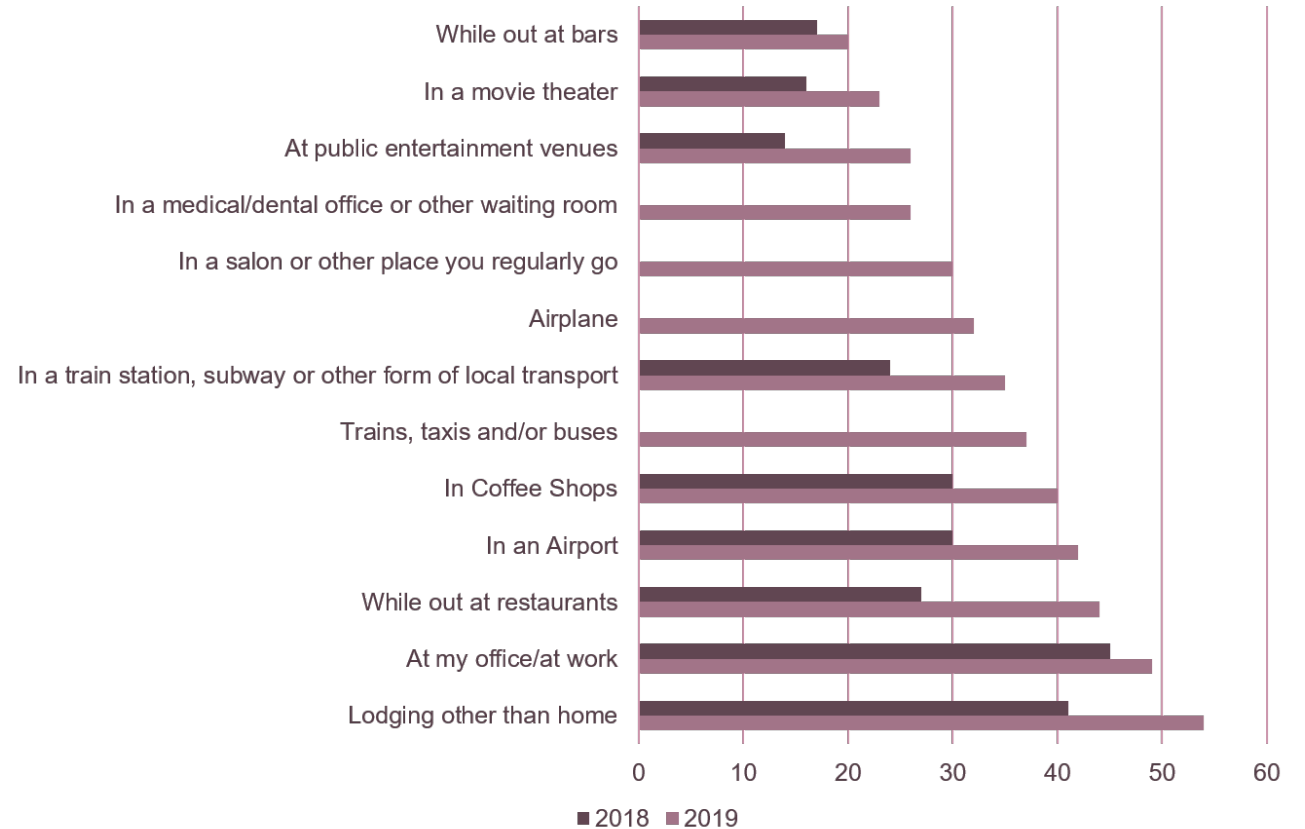
What do customers need?

As battery anxiety is a key concern, consumers want to see wireless power available to them in more places

Consumers experiencing battery anxiety (fear to run out of battery)



Consumers wishing wireless charging options

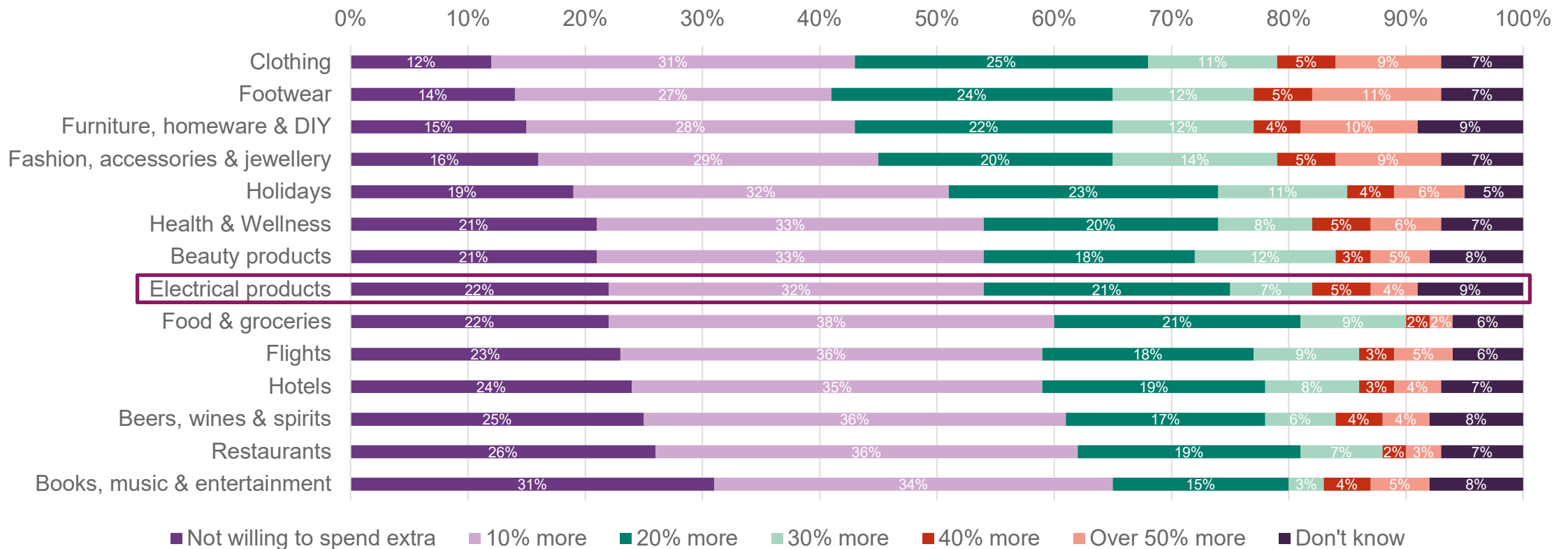


Note(s): 3,500 consumers across U.S., U.K., Germany, China, India, Indonesia and Japan
Source: WPC Global Consumer Perceptions Study 2019

What do customers need?

With our digital manufacturing in mind: 69% of consumers are willing to pay a premium for personalized electrical products

Premium consumers willing to pay for personalized products in Great Britain 2015

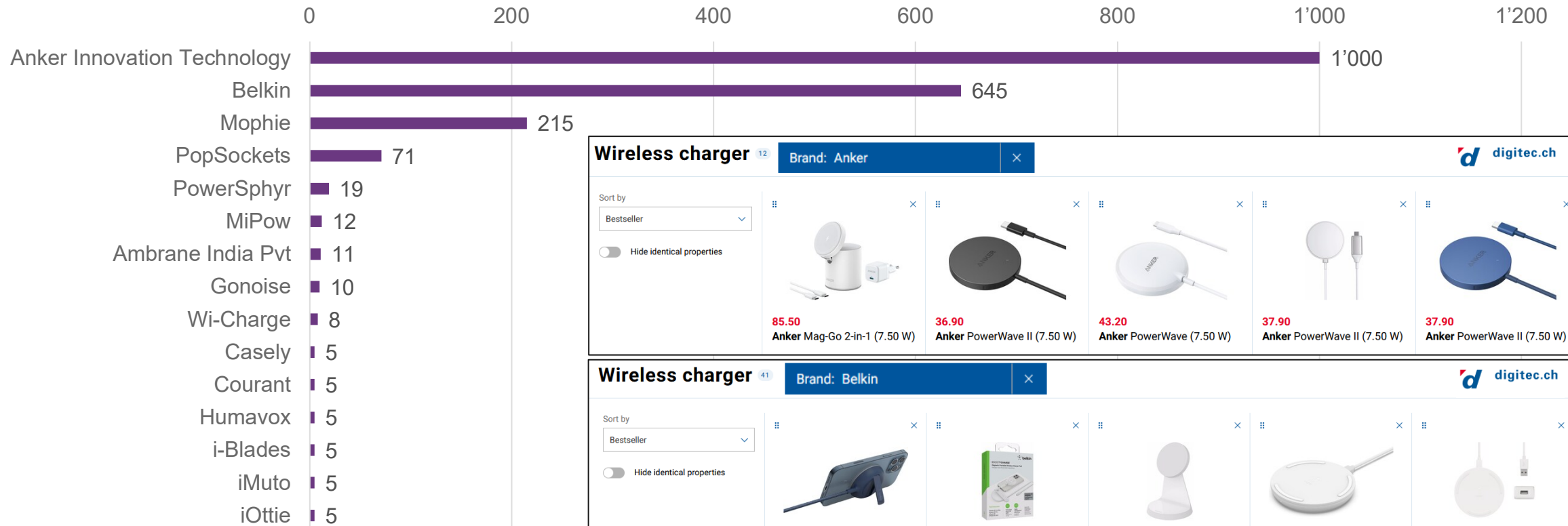


Note(s): United Kingdom (Great Britain); June 2015 ; 16 years and older; 1,560 respondents; All interested in customized products and/or services
Source(s): Deloitte; YouGov; [ID 462684](#)

What is the competition?

Anker and Belkin are the leading brands

Wireless charging companies worldwide 2022, by revenue



Wireless charger 12 Brand: Anker

Sort by: Bestseller

Hide identical properties

Product	Price
Anker Mag-Go 2-in-1 (7.50 W)	85.50
Anker PowerWave II (7.50 W)	36.90
Anker PowerWave (7.50 W)	43.20
Anker PowerWave II (7.50 W)	37.90
Anker PowerWave II (7.50 W)	37.90

Wireless charger 41 Brand: Belkin

Sort by: Bestseller

Hide identical properties

Product	Price
Belkin Portable MagSafe Charging Pad (15 W)	58.50
Belkin BOOST↑CHARGE Indoor (7.50 W)	42.60
Belkin BOOST↑CHARGE Indoor (20 W)	45.20
Belkin Boost Charge (10 W)	25.80
Belkin Wireless Charging Pad 10W Micro-USB	21.30

Note(s): Worldwide; May 2022
Source(s): Statista; ZoomInfo

What is the competition?

Prices range from ~10-150 CHF, most products around 40CHF, but also strong demand for premium products

digitec.ch Wireless charger Compare Top 4 EN

Sort by: Bestseller

Hide identical properties

CHF 10 | CHF 136+

Power

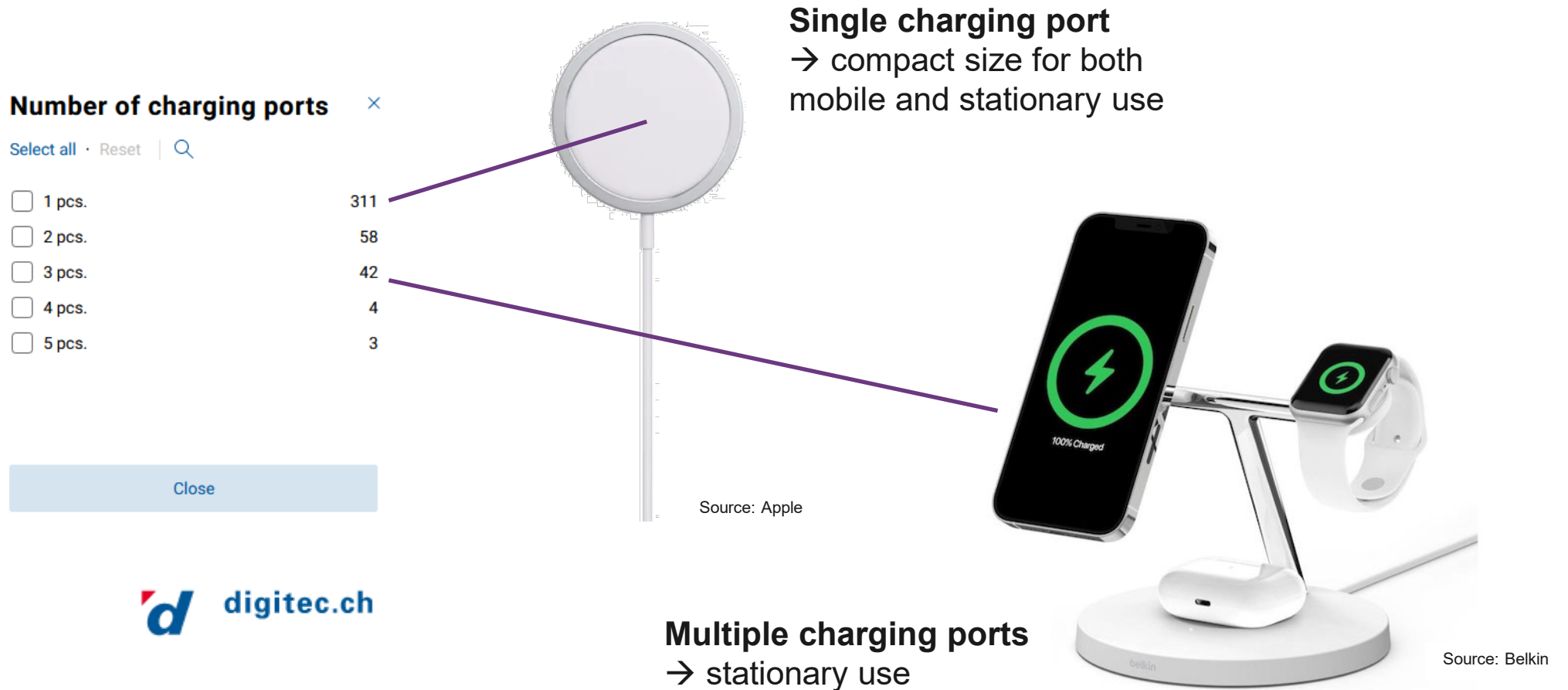
- 5 W
- 7.5 W
- 9 W
- 10 W
- 10.5 W
- 15 W
- 20 W
- 30 W
- 45 W

Close

	Apple MagSafe Charger (15 W)	Apple MagSafe Duo Charger (15 W)	Zens 4 in 1 Magnetic Alu Charger (30 W)	Belkin Boost Charge Pro 3-in-1 Wireless Charger with
Price	37.70	100.-	123.-	151.-
Rating	★★★★★ 710	★★★★★ 249	★★★★★ 15	★★★★★ 141
Delivery	Delivered the day after tomorrow	Delivered the day after tomorrow	Delivered the day after tomorrow	Delivered the day after tomorrow
The most important differences				
Number of charging ports	1 pcs.	2 pcs.	4 pcs.	3 pcs.
Suitable for	Headphones with Qi, Smartphone	Headphones with Qi, Smartphone	Apple Watch, Headphones with Qi, Smartphone	Apple Watch, Headphones with Qi, Smartphone
Additional functions	Magnetic	Magnetic	Magsafe	LED charge indicator, Magnetic
Power	15 W	15 W	30 W	15 W
Description				
Description	MagSafe is a colourful accessory that magnetically holds to your iPhone, giving it a personal touch and... more	Charge your compatible iPhone, Apple Watch or AirPods with wireless charging case and other Qi certified... more	Beautiful, simple and elegant: This noble charging station from Zens is made of high-quality aluminum... more	This extremely convenient 3-in-1 wireless charging stand provides the fastest possible charging for your... more

What is the competition?

The majority of chargers has a single charging port



What is the competition?

Differentiation can be generated by MagSafe or the combination of wireless charging with an USB hub

MagSafe

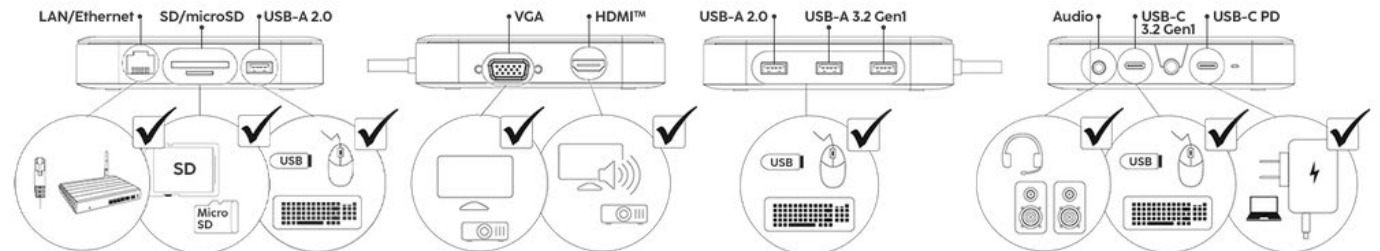


Source: Apple

USB hub



Source: Hama



What is the competition?

For wireless charging in businesses, there are dedicated suppliers offering additional functions

PLACE AN ORDER IN A FEW STEPS

Leverage your customer's own device to provide a safe and enhanced dine-in experience

1. TAP/SCAN TO CHECK-IN
2. ORDER & PAY
3. RECEIVE THE ORDER AT TABLE OR TO ROOM
4. INTERACT WITH SERVICES
5. CHARGE YOUR PHONE

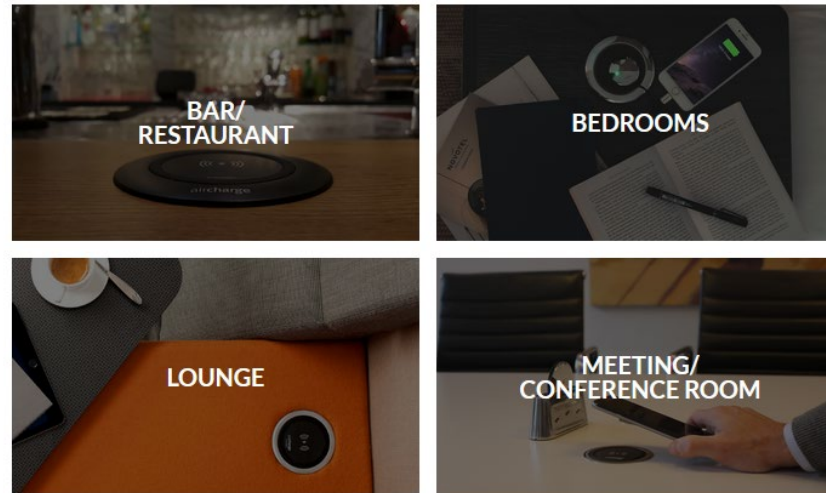


- ↑ PUSH MORE CUSTOMERS TO YOUR VENUE
- ↑ BOOST REPEAT CUSTOMERS
- ↑ INCREASE REVENUE PER CUSTOMER

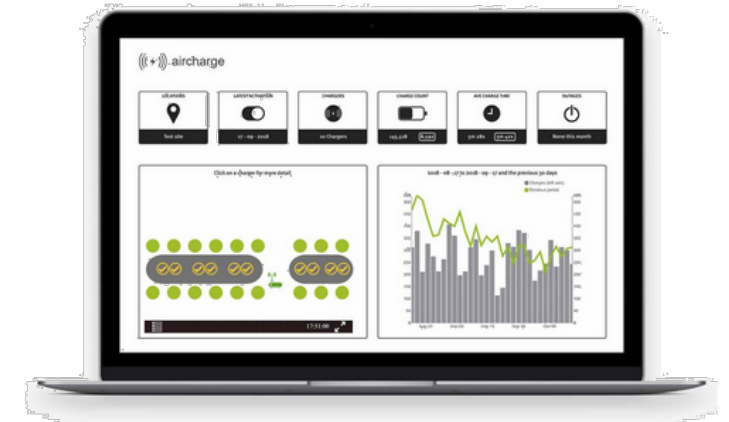
Source: Aircharge

EASY INSTALLATION

Elevate your customer service and provide your guest with the contactless and frictionless experience they require. Aircharge seamlessly and beautifully integrates within your furniture design to create a premium feel and enhanced experience.



UNDERSTAND YOUR CUSTOMER



Access useful insights and analytics in real-time

- ✓ HOTEL CHECKIN
- ✓ APP DOWNLOADS INITIATED
- ✓ ROOM SERVICE ORDERS
- ✓ POPULAR SERVICES
- ✓ BUSIEST TIME OF THE DAY
- ✓ BUSIEST TIME OF THE WEEK
- ✓ RETURNING GUESTS
- ✓ OFFER REDEMPTION CONVERSION RATE
- ✓ ACCESS TO SERVICES
- ✓ FEEDBACK RATING

Marketing Strategy

Where to play, how to win?



What is our strategic position?

Digital manufacturing know-how is our strength, our weakness is that we are not a real and competitive enterprise

Strengths

- Cutting-edge digital manufacturing technology, in particular in injection moulding
- Availability of a brain pool of experts with innovative mindset
- OST is a brand known to local students, industry, and limited public that is associated with innovation and education

Opportunities

- Pressure to de-globalize supply chains increases interest in smart factory technology
- Exponential growth of wireless charging market
- Battery anxiety and trend to wireless charging on the go
- Trend and pressure by European regulators to standardize smartphone chargers

Weaknesses

- No experience, no infrastructure, no personnel for cost-efficient series production, distribution, and service
- Lacking know-how in certification (→ Qi certification)
- High labor cost
- Brand only known locally
- It is not the purpose of OST to create commercial products

Threats

- Supply chain disruptions endangering raw material supply, in particular electronics, and increase COGS
- Rise of electric vehicles might put further pressure on availability and cost of electronics material
- Continuous development of charging technology and standards put pressure on product cadence

What are our target segments?

Consumer: large segment, but are we ready for a competitive mass market?

Segment characteristics

We expect a potential of 60'000 wireless chargers in Kanton St. Gallen next year.

Assuming we take 1% and demand stays constant, **we could sell 600 chargers per year.**

Assumptions:

- 1.8 Mio. smartphones will be purchased in Switzerland next year, proportionally to the population we assume 100k in Kanton St. Gallen (→ slide 10)
- 78% of smartphone buyers want a wireless charger with their next smartphone (→ slide 14)
- 20% of smartphone buyers already own a wireless charger (→ slide 15)

+ Pro

- Large segment, potential for economies of scale benefits
- A successful product would boost awareness for OST in the general public

- Con

- High competitive pressure
- High customer expectation on quality and service
- Cost-sensitive
- Requires elaborate distribution network
- Requires intensive communication
- Requires creating after sales service

What are our target segments?

Consumer premium: Allows to focus & play our strengths, but can we live up to expectations on quality and service?

Segment characteristics

We expect a potential of >8'000 wireless chargers in the premium category in Kanton St. Gallen next year.

Assuming we take 1% and demand stays constant, **we could sell 80 chargers per year (with premium margins).**

Assumptions:

- Premium category = >80CHF
- 13% of products >80 CHF (digitec.ch)
- Share of sales proportional to available products

+ Pro

- A successful product would boost awareness for OST in the general public
- Allows playing our strengths in technology, e.g. personalization, to differentiate and justify a price premium (→ slide 20)
- Less cost-sensitive
- Higher margins can compensate lower quantities
- Allows focused communication and distribution

- Con

- High competitive pressure
- Very high customer expectation on quality and service
- Requires creating after sales service
- Special requirements – you can't target other segments with the same product
- In-house electronics development for technological differentiation might require certification (Qi), where we are lacking know-how

What are our target segments?

Charging to go in lodging and gastronomy: small and difficult segment

Segment characteristics

We expect a potential of up to 10'000 wireless chargers in Kanton St. Gallen.

Assuming we take 1% and a 5 years cadence, **we could sell 20 chargers per year.**

Assumptions:

- 220 hotels with 9292 beds in Kanton St. Gallen (BfS, 2020)
- 1613 gastronomy businesses in Kanton St. Gallen (BfS, 2018)
- A gastronomy business would in average buy 10 chargers, a hotel a charger per bed
- 53% of customers would welcome a charger in the hotel, 40% in gastronomy (→ slide 19)

+ Pro

- Efficiency in communication and distribution – low number of customers, each customer with a demand of potentially double digit number of units

– Con

- Special requirements (businesses want more than a charger, → slide 25). you can't target other segments with the same product
- Low adoption rate so far – businesses and would need convincing that offering wireless charging is a good idea
- Customer pool is very limited
- High customer expectation on quality, cost, and service
- Requires creating after sales service

What are our target segments?

Charging to go in the office: We can build on existing industry relationships of OST, but no pull on wireless chargers

Segment characteristics

We expect a potential of up to 50'000 wireless chargers in Kanton St. Gallen.

Assuming we take 1% and a 5 years cadence, **we could sell 100 chargers per year.**

Assumptions

- In Kanton St. Gallen there are 307'000 workplaces (BfS, 2019)
- 36.7% of employees are working in offices (Institut der deutschen Wirtschaft, 2020)
- 49% of employees would welcome a wireless charger at their desk (→ slide 19)

+ Pro

- Efficiency in communication and distribution – low number of customers, each customer with a demand of potentially double digit number of units
- We have an established relationship with industry partners of OST

– Con

- Low adoption rate so far – businesses and would need convincing that offering wireless charging is a good idea
- Customer pool is very limited
- High customer expectation on quality, cost, and service
- Requires creating after sales service

What are our target segments?

OST students and staff: we expect reasonable quantities at moderate effort

Segment characteristics

We expect a potential of 600 chargers for OST students and staff next year.

Assuming we take 30% and demand stays constant **we could sell 200 chargers per year.**

Assumptions

- OST has 3800 students and 1500 staff (OST.ch)
- 97.2% of OST students and staff own a smartphone (→ slide 9)
- 20% of smartphone owners will buy a new device next year (→ slide 11)
- 78% of smartphone buyers want a wireless charger with their next smartphone (→ slide 14)
- 20% of smartphone buyers already own a wireless charger (→ slide 15)

+ Pro

- Identification of students and staff with OST
- Simple communication and distribution
- As an OST-internal product, service expectations are lower

- Con

- Small market

What are our target segments?

OST merchandise: good fit for a premium merchandise, we expect reasonable quantities

Segment characteristics

We expect we could use 300 chargers per year.

Assumptions:

- Due to its cost, the Gadget is not distributed as a merchandise on fairs and events
- The Gadget is used as a merchandise gift for premium partners, assuming 50/year
- Each industry visitor of the smart factory in Buchs or Rapperswil receives a Gadget, assuming 20/month

+ Pro

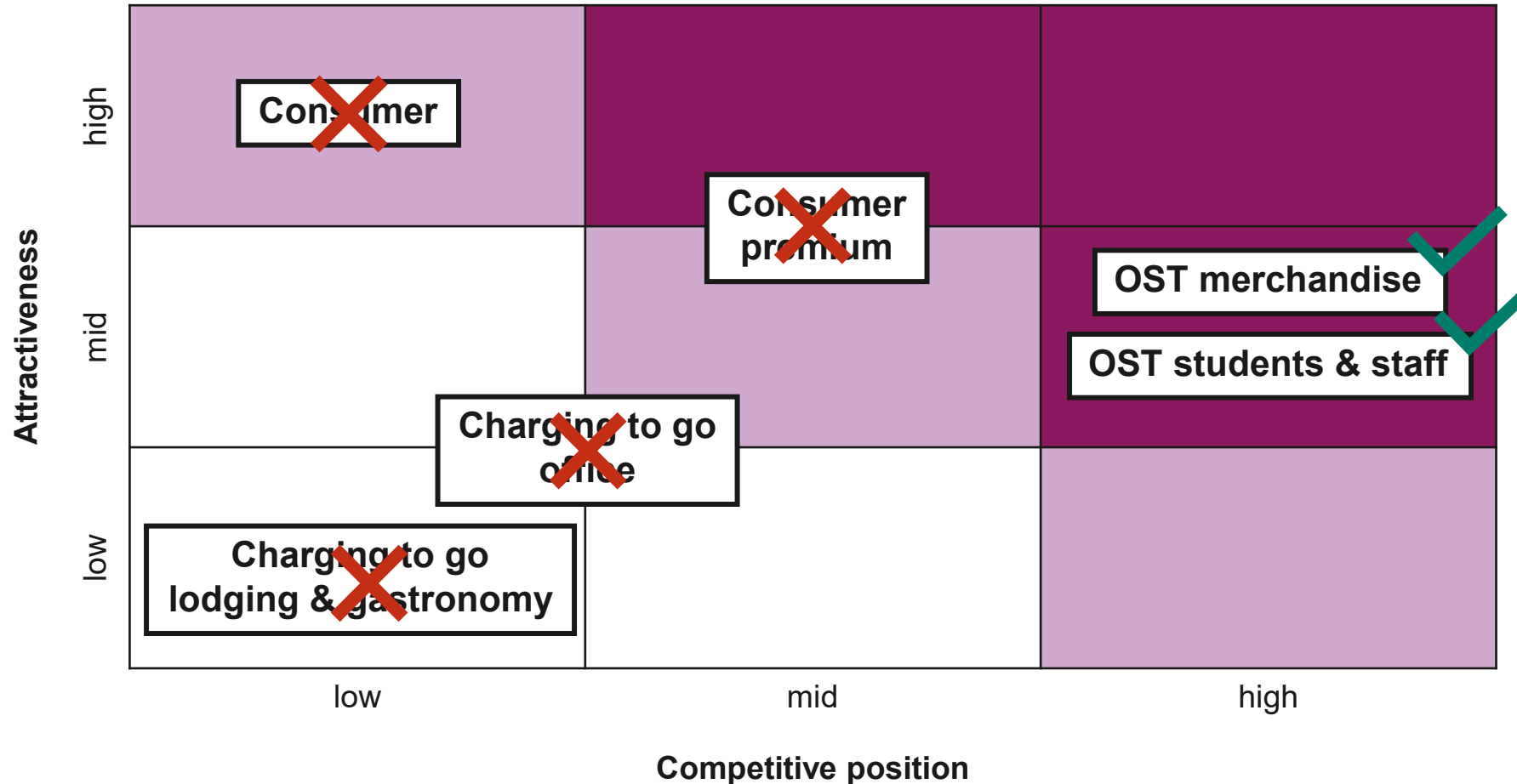
- Good fit for a merchandise: Enables demonstration of technological competencies of OST, in particular of those in the smart factory, and proves OST's hands-on approach
- No distribution network, no promotion required

- Con

- The cost is substantially higher than the unihockey ball previously produced by the smart factory in Rapperswil

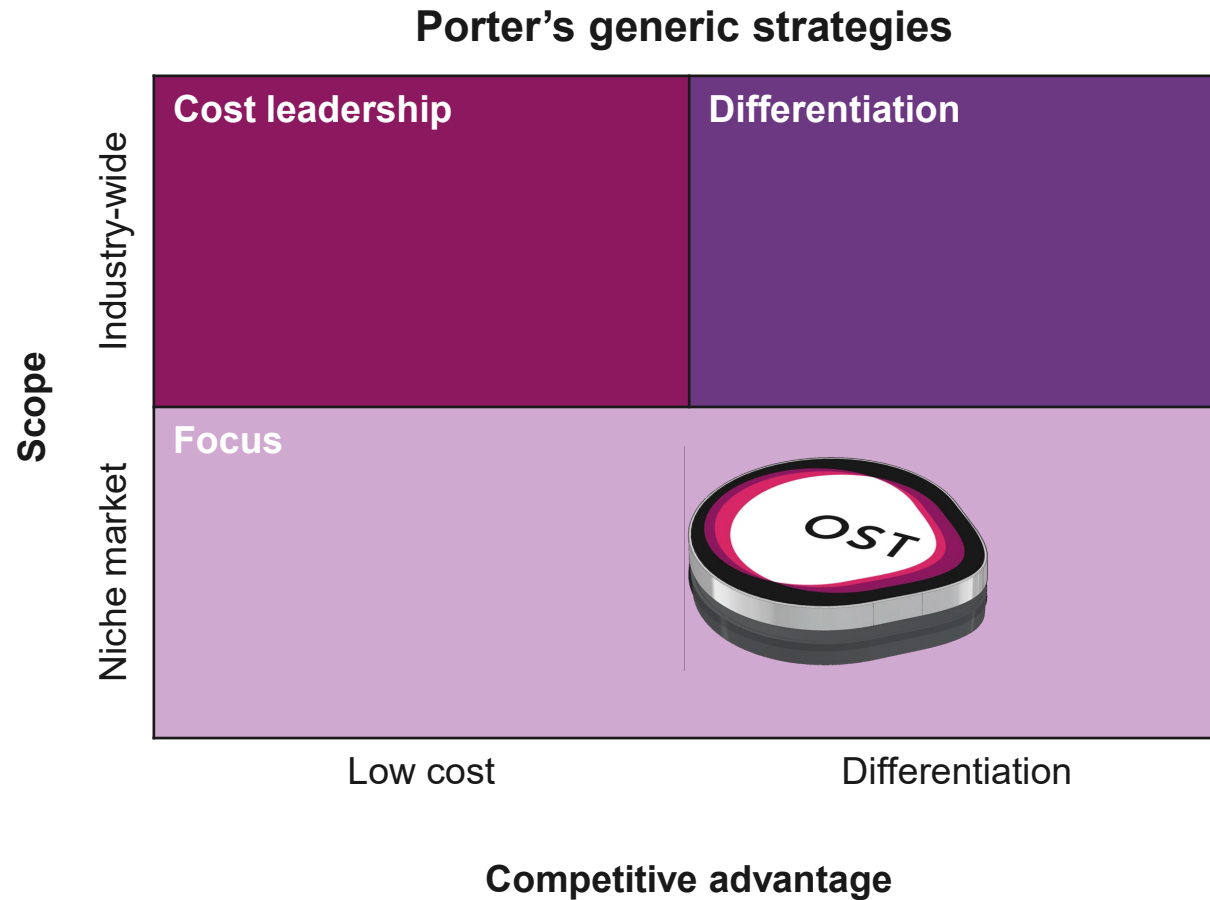
What are our target segments?

We recommend targeting merchandise and students & staff; premium interesting but can't be targeted with same product



What is our value proposition?

Our strategic position implies a focus approach with technological differentiation



Build on technological strenghts!

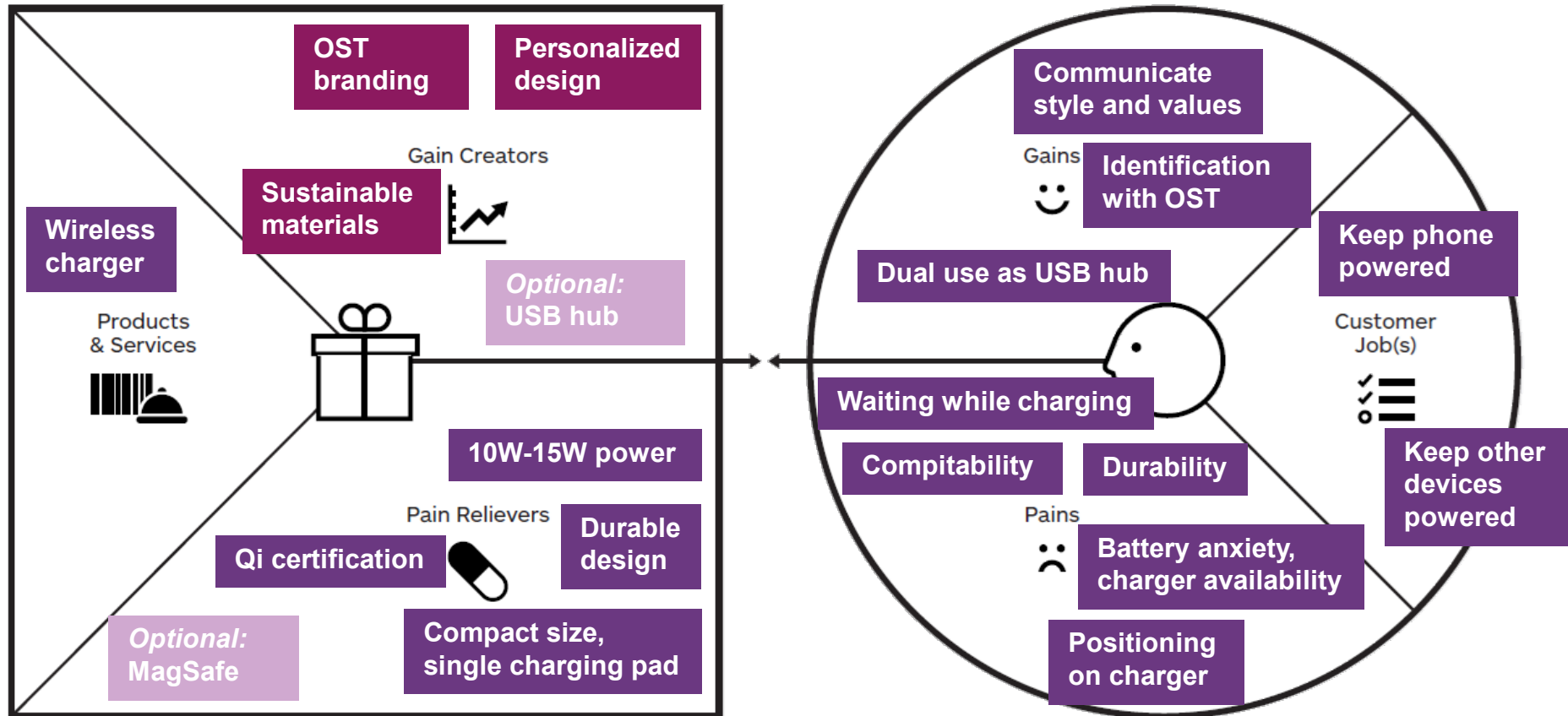
Avoid cost sensitive segments!

Avoid complexity in distribution & service!

Stay regional!

What is our value proposition?

Using a focus strategy, personalized design is at the core of our differentiation



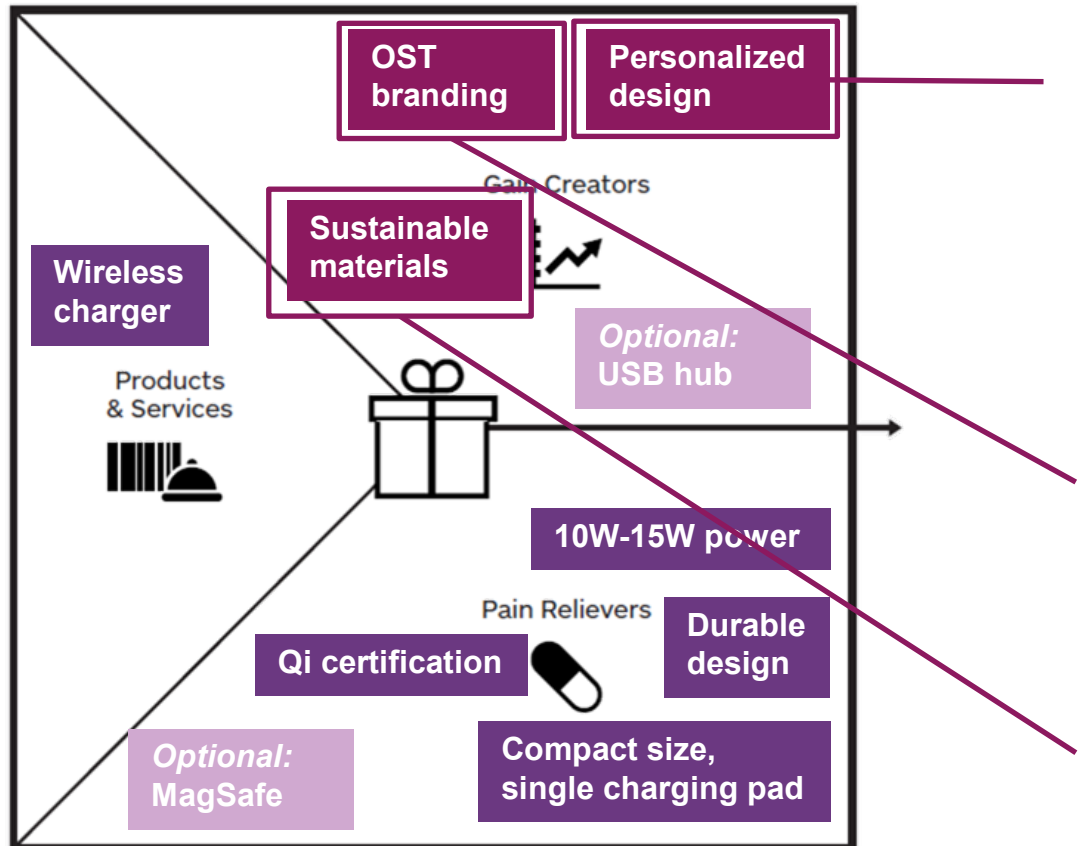
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What is our value proposition?

Personalization is the core of our differentiation, combined with OST branding and sustainable materials



Personalization makes us different

We propose a personalized design as the core of our differentiation, because

- Consumers want it (→ slide 20)
- Our strengths in digital manufacturing enables us to do it (→ slide 27)
- It enables us to demonstrate OST's competencies, which is one of the key requirements on the product (→ slide 6)

OST branding makes the merchandise

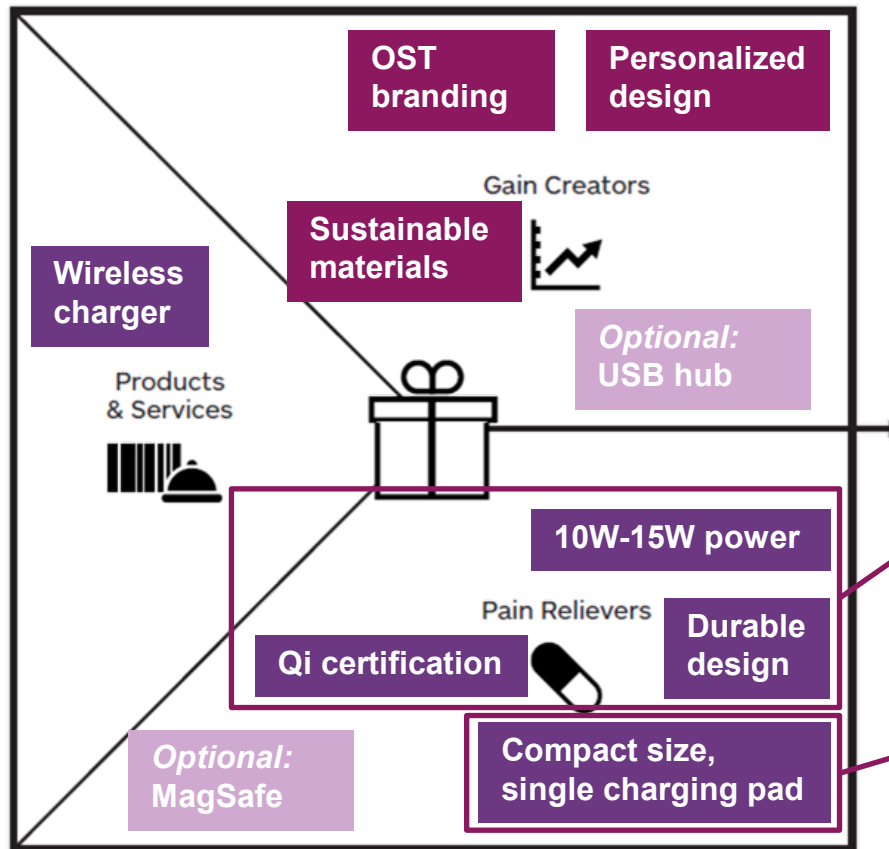
A strong and visible OST branding makes the product a merchandise.

Sustainable materials represent the values and mission of OST

Climate and energy is one of the strategic focus areas of OST. The use of sustainable materials enables emphasizing that claim.

What is our value proposition?

Qi certification, sufficient wattage, and durability are must-haves. We prefer a compact, mobile charger.



These are must-haves

We consider

- Qi certification,
 - min. 10W and max 15W power, and
 - durable design
- hygiene factors that we must have, but which do not add to differentiation.

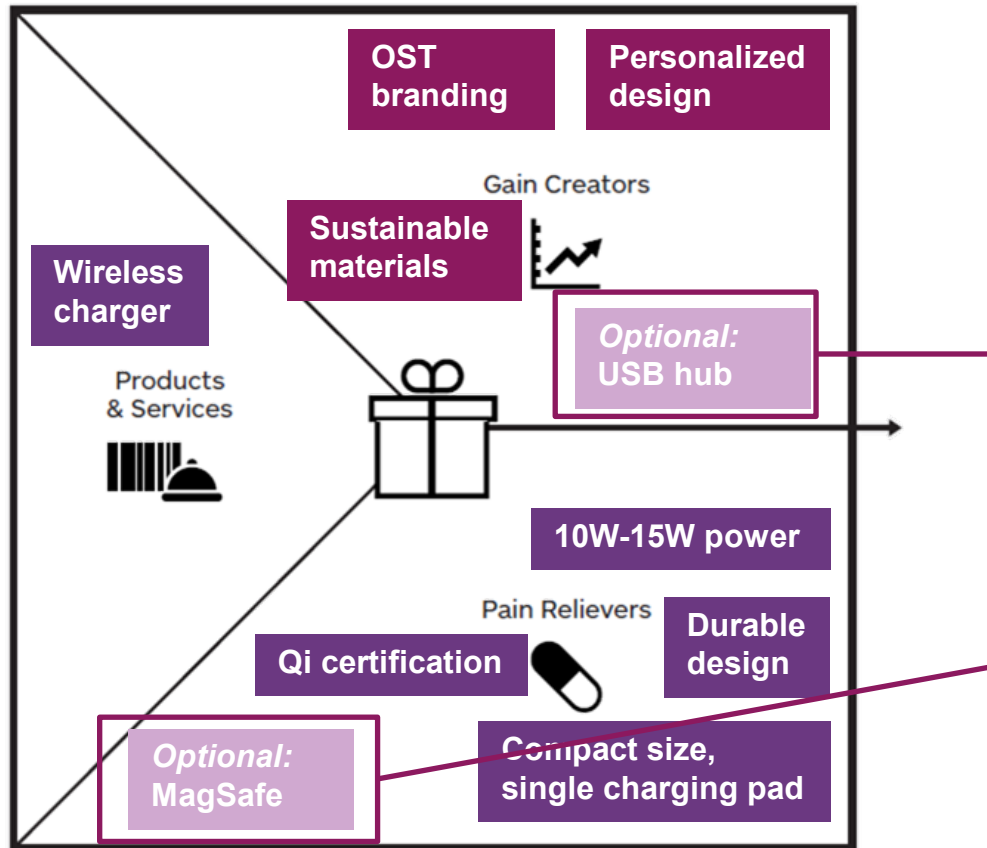
We prefer mobility

We prefer a compact, single-pad, mobile charger over a stationary charger with multiple charging pads. This solution is

- less costly,
- more flexible,
- makes charging available on the go, and
- displays the OST branding in public.

What is our value proposition?

MagSafe and/or USB hub are nice-to-have



An USB hub is nice to have

An USB hub feature adds to differentiation, but is not related to our core competencies or values. We consider the feature nice to have if it can be added at minimum cost.

A MagSafe feature is nice to have

A MagSafe feature adds to differentiation and will be welcomed by users of iPhone 12 or later (→ slide 17). Since these are only a minority of the market, we consider the feature nice to have if it can be added at moderate cost.

Marketing Mix

How to turn strategy into action?

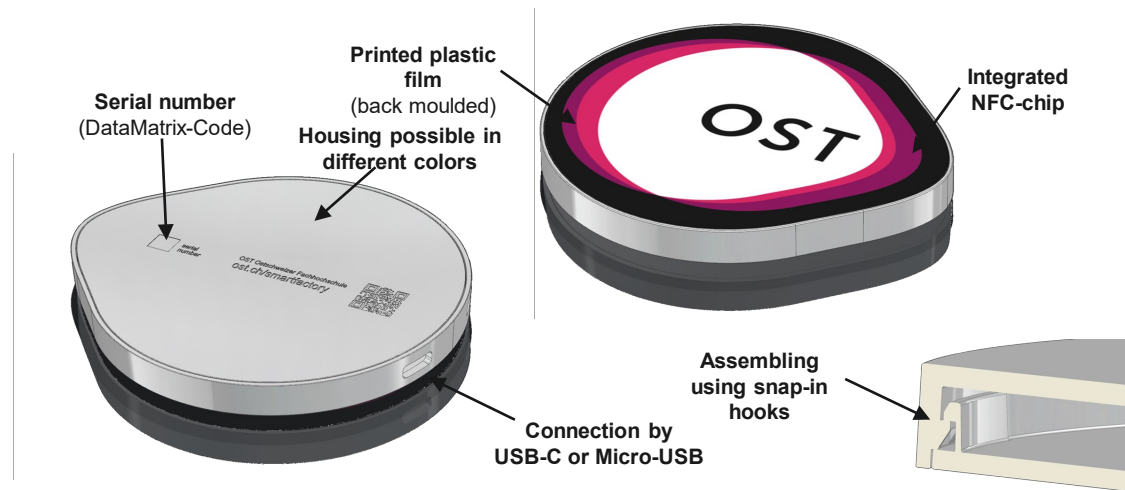


What is the product?

**We only offer the physical product – no frills, no service.
We make the housing, we buy the electronics.**

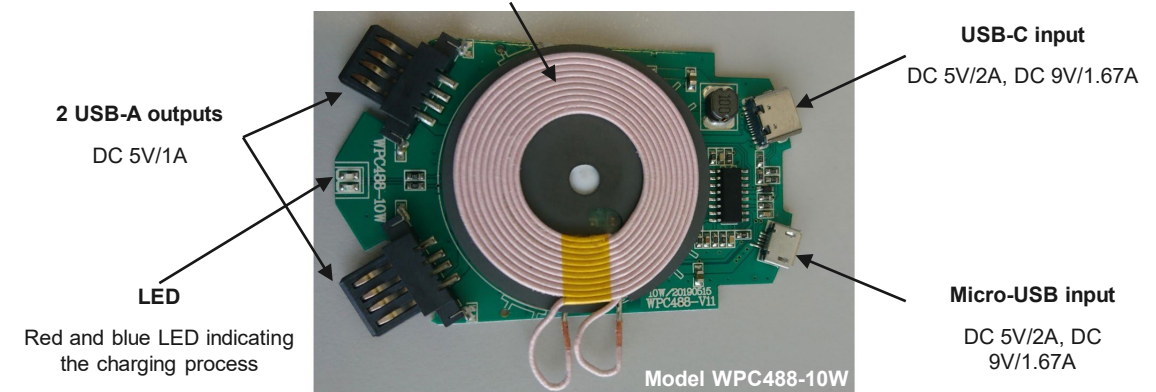
We make the housing to show our strengths

We buy the electronics to avoid certification



Wireless output

DC 5V/1A (5W), DC 9V/1.1A (10W)
charging distance ≤6mm
works with all Qi-compatible devices



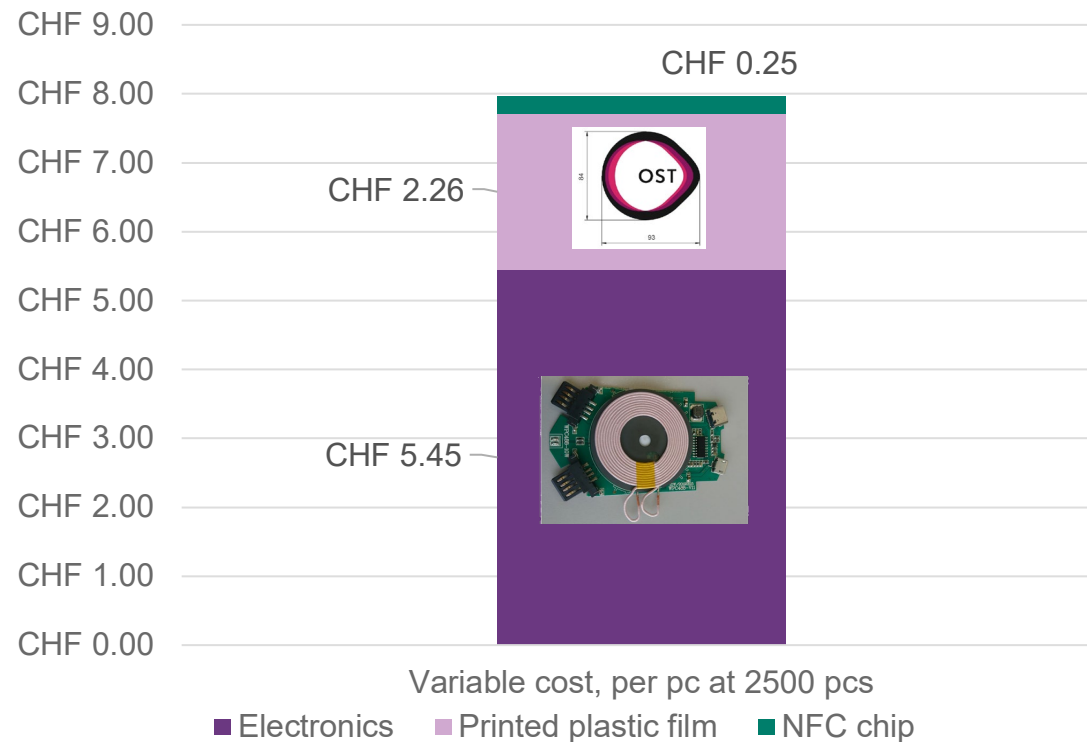
- In-house production to demonstrate the smart factory's competencies and infrastructure in injection moulding and digital manufacturing
- Personalized design e.g. by choice of colors, variants or fully personalized print, etc.
- Strong OST branding by housing in the shape of the OST logo
- Durable design with sufficient thickness
- Using recycled plastics for sustainability

- To avoid the need for a Qi certification and to shorten time to market, we source the electronics externally
- Assembly of housing and electronics is done in-house
- The proposed electronics feature 10W wireless output, compact size for a single charging pad, Qi certification, durable design, and an USB hub.

What is the price?

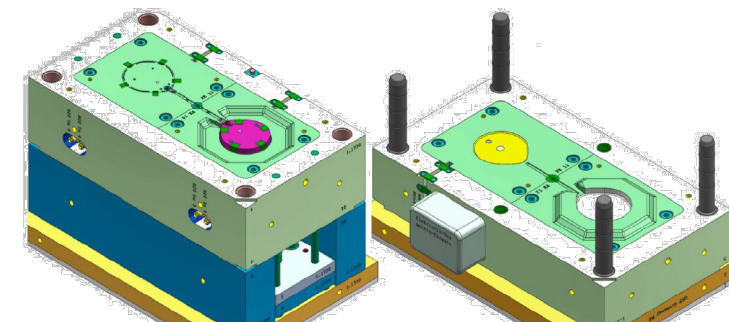
We estimate the material cost around 8CHF/pc plus 50kCHF fixed cost

The variable cost for material is currently around 8CHF/pc



The fixed cost for material is currently around 50'000 CHF

The cost for the injection moulding tools is 50'000 CHF



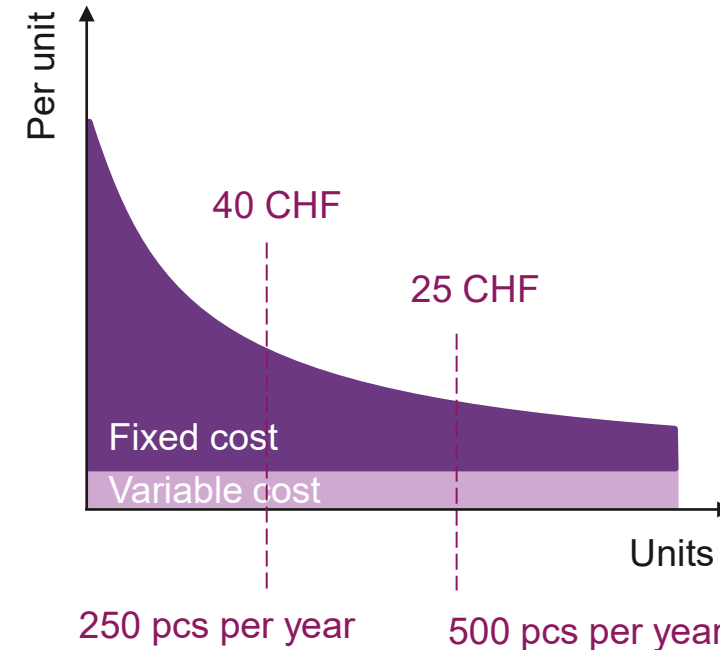
Assume a depreciation period of 7 years

What is the price?

We estimate a 25 CHF price; we could still sell at market's average 40 CHF if quantities are -50% lower than expected

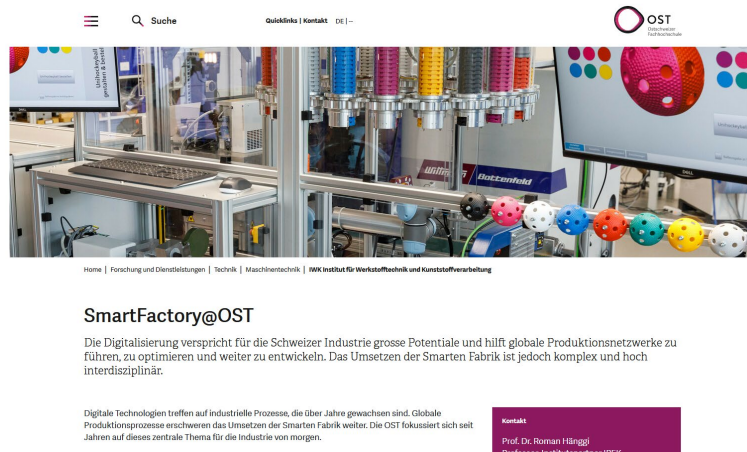
Assumptions

- We expect **300 chargers per year** for merchandise (→ slide 33).
- We expect **200 chargers per year** for OST students and staff (→ slide 32).
- We assume depreciation of the tooling over **7 years**
- We only consider **materials cost**, labor covered by running the smart factory, no cost for distribution
- We consider **Swiss VAT 7.7%**
- For the use as merchandise and sales to students and staff, we want to sell **non-profit**



What is the place?

OST students and staff can order online and pick up their product at the reception

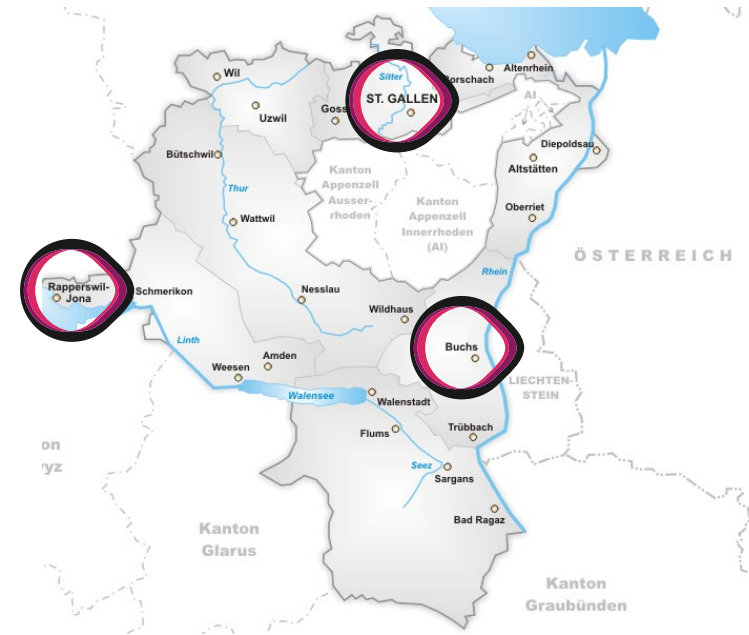


Order online

The ordering infrastructure should create only moderate effort and allow personalizing the product.

We propose an online system:

- Order on the smart factory's homepage
- Online design personalization
- Online payment



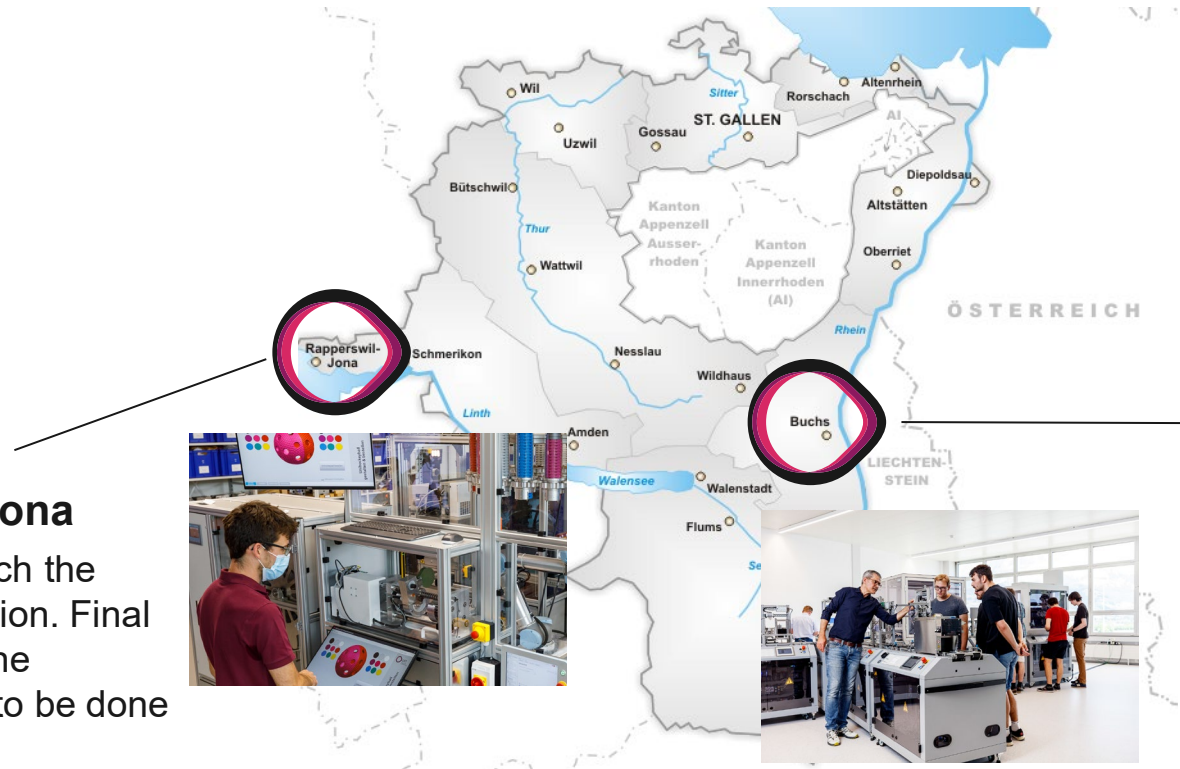
Pick up at the reception

The distribution should not require additional infrastructure or staff and be available at all OST locations.

We propose picking up orders at the reception desks of each OST location. We use regular employee traffic between locations for logistics.

What is the place?

For use as merchandise, smart factory visitors can watch the product being made



Rapperswil-Jona

Visitors can watch the housing production. Final assembly with the electronics has to be done manually.

Buchs

Visitors can watch the final assembly. Personalization only with a pre-defined choice of designs.

What is the promotion?

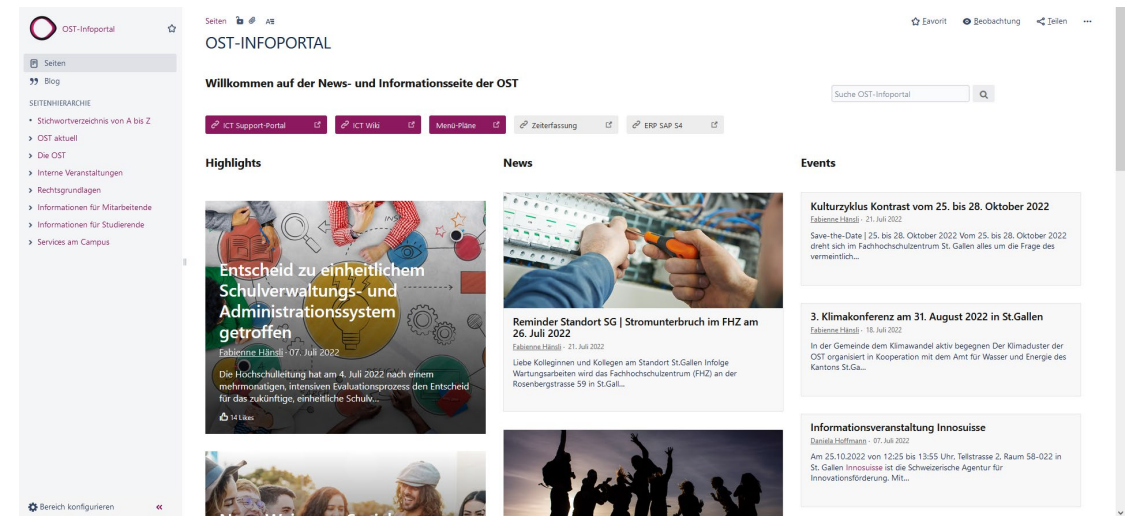
Communication to OST students via classes utilizing the smart factory, to OST staff via intranet

OST students via classes



- Direct communication to classes that utilize the smart factory does not create any cost
- Students who have had classes in the smart factory are more likely to be interested in the product
- No further promotion to avoid cost

OST staff via intranet



- Regular announcements on the intranet does not create any cost and should reach a high share of employees
- No further promotion to avoid cost