

barcoo connects real world objects with consumer information from the internet

User is scanning product barcode



- USP: Unique 1D barcode scanner with a potentially high market share
- 2D barcode scanning already very popular in Japan
- **Physical world connection** through 1D barcodes with majority of products possible

Context sensitive advertisement



- **Strong growth** of market volume with mobile advertisement (9.5 Billion US\$ 2011*)
- User is involved in a **buying decision** → High revenues because scanned product is known.

Product information is displayed



- **Aggregation of relevant information** for each product category:
 - Price comparison
 - Product reviews
 - Eco & organic information
 - Allergy information
 - Recipes
 - Nearest shop
 - Accessories/ substitute

Link to mobile internet shops



- **Direct links** to product in mobile online shops (e.g. Amazon, eBay, Otto, Jamba/ Nokia Music Shop, Quelle)
- **Mash-up strategy**, no product databases required

Management Summary – barcoo

barcoo aims to

use standard 1D barcodes to provide product and market transparency on everybody's mobile phone

Product	Market	Team	Finance	Technology
<ul style="list-style-type: none">• Free barcode scanner for mobile phones to access consumer information (e.g. price comparison, eco & organic information)• Highly user-friendly• Launch 01.01.2009• Revenue by context sensitive mobile advertisement & shopping commission	<ul style="list-style-type: none">• Overview<ul style="list-style-type: none">- Accelerated growth for mobile advertisement expected- Growing with mobile internet flat rates• Marketing<ul style="list-style-type: none">- Start in Germany- Medium-term target group: young online shoppers• No direct competitor<ul style="list-style-type: none">- Advanced 1D technology- Most comprehensive service	<ul style="list-style-type: none">• Three founders working full time on project since 11/2007• Competencies in technology and commerce• Eight years of successful teamwork in a business context• barcoo is supported by an experienced advisory board• Part of the Humboldt University Innovations network	<ul style="list-style-type: none">• 230 T€ capital requirement• First funding (for next 7 months): 80 T€• Break-even: estimated 4th quarter 2009• High revenues with growing mobile internet usage	<ul style="list-style-type: none">• Unique 1D barcode scanner for wide spread mobile phone models in the European market• High barcode recognition rate through state-of-the-art machine learning and pattern recognition algorithms• Significant technological advantage compared to potential competitors

Beta version is used to seek funding and partnerships – further work on product needed

Current tasks

- Seeking funding
- Building strategic partnerships
- Porting 1D technology to J2ME

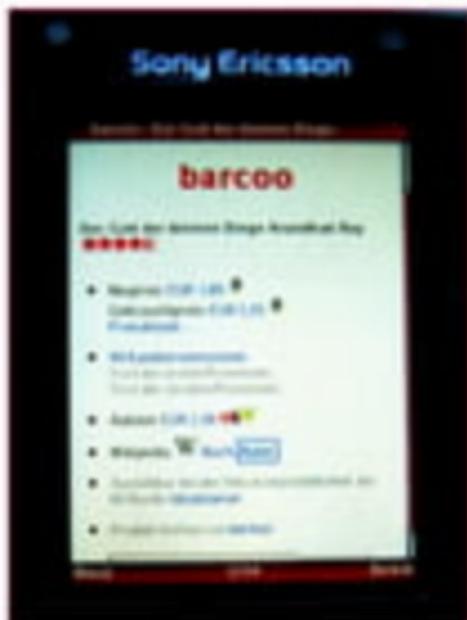
Ready to show beta version including

- Mobile phone based barcode recognition
- barcoo server application
- Mash-up data

Company

- Not yet incorporated
- Based in Berlin, Germany

Projected launch: 01.01.2009



barcoo result page after scanning a book
(Used phone: K770)¹

¹ Recognition is already working on mobile phones supporting QR 2D

barcoo provides direct product information and mobile shopping for consumers



Mobile scanning of products¹ to display existing and independent consumer information on mobile phones

- Price comparison
 - Product reviews
 - Eco & organic information
 - Allergy information
 - Nearest shop
 - Recipes
 - Accessories/ substitutes
- ↓
- Transparency for market and product
 - Direct shopping possibility in known internet shops

¹ Scanner programs for shopping and product information on web services mostly available for free
² Start with product categories Consumer electronics, Health care, books
→ after 10/2009 food, shopping products, etc.

Scanning of existing 1D barcodes is universal and user-friendly

Link reality with internet through 1D barcodes



- **1D barcodes** exist on almost every product 
- Product information via mobile internet
- 1D barcode allows for information **independent from manufacturer** – 2D barcodes¹ are mainly used for advertisement 

Highly user-friendly by barcode scanning



- **No manual typing** of barcode numbers needed (but possible as backup)
- **Good User Experience**
- Users are **prepared** for barcode scanning by a increasing 2D barcode usage

¹ 2D barcodes are designed for mobile applications, therefore design is simpler

Revenues from context sensitive advertisement and shopping commissions – also campaigns and LBS later

Mobile context sensitive advertisement



- Display of context sensitive advertisement after request while aggregating results (entire screen)
- Context sensitive advertisement on result page

Shopping commissions

- Direct links to product in mobile online shops (eBay, Otto, Jamba, Nokia Music Shop*, Quelle)
- Commission from 5% per purchase, from 0.10 € per bid or from 6 € per order
- Inclusion of more shops as soon as mobile versions available

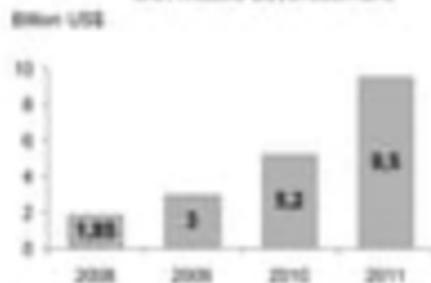
Later campaigns and location based services

- Marketing campaigns for manufactures e.g. "Scan all 3 new flavors and you get a free ring tone"
- Location based advertisement by local partners (cinemas, shops and events)
- User base necessary, therefore start in Q3 2009 planned

High revenues with mobile advertisement expected – Medium-term target group young online shoppers

Strong growth with mobile advertisement expected

Predicted world market volume with mobile advertisement¹



- Accelerated growth with cheaper mobile internet flat rates
- "mobile will be a larger business than the PC-Web"²

Target group: Young online shoppers, expecting market transparency

- One third of Germans inform themselves on the internet before buying expensive products³
- Mainly use price comparison and product reviews³

Mid-term Target group: **young online shoppers** (age of 15 - 40) willing and able to **install applications** on mobile phone - further specification according market segments

1. Source: E.G. Wireless-Research: Financial Times Deutschland 2007
2. Source: Study of "Internet für Wirtschaftswachstum 2007"
3. Source: Google CEO Eric Schmidt (27.08.2008 in Fra 14)

5 market segments will be focused on in 2009 and 2010

	Spontaneous shopper	Bored high school student	Spontaneous recipe user	Eco consumer	Film freak
Age					
Gender					
Annual income					
Characteristics	Self-determined, is used to high market transparency, interested in new technology	Wants to impress the clique, open to new "toys"	Loves spontaneity, open to new things	Strong ecological awareness, expects high market transparency, distrustful	Interested in films and likes new technology
Dominating information categories	<ul style="list-style-type: none"> - Price comparison - Product reviews 	<ul style="list-style-type: none"> - Recipe suggestions - Eco information - Background information 	<ul style="list-style-type: none"> - Recipe suggestions - Nutritional value 	<ul style="list-style-type: none"> - Label explanation - Information on ingredients - Allergy information 	<ul style="list-style-type: none"> - Actors/ directors - Critiques - Summaries
Amount of users	2009: 28,000 2010: 57,000	2009: 3,000 2010: 34,000	2009: 0 2010: 11,000	2009: 0 2010: 6,000	2009: 3,000 2010: 6,000

barcoo differs from competitors in completeness of information and 1D barcode scanner

Comparison of barcoo and main competitors	1D barcode	2D barcode	Price comparison and other information	barcoo
Legend: • Supported ○ No productive service available/ announced (research project, etc.)	Competitor Android Scan Amazon.jp iBlueToo CamClic Graffiti ScanBuy Google Xing Thymon BlueTapp Bagger.de Queensloger.de Frucast scas.com dooyoo.de essen & trinken bfrust			
1D scanner (high end mobile phones)	•	•		•
1D scanner (low end mobile phones)	○	○		•
2D scanner		•		•
input of EAN-13 possible	○	○		•
Offers independent information	○	○	•	•
Price comparison	○	○	•	•
User reviews	○	○	•	•
Eco information				•
Allergy information		○		•
Background information (e.g. recipes)	○	○		•
Free for end user (not including cost of internet)	○	•	•	•
German market		•	•	•
Location based services (e.g. nearest shop)	○	○		•
ISBN focused		•		•

¹⁾ Standard mobile phones in Japan have better optics

²⁾ Barcode recognition works only with extra lens mounted on mobile phone

³⁾ Use of picture of book cover instead of barcodes

Long-term strategy is based on extension of service – Integration of additional partners is intended

barcode extensions	Priority concerning content
Location Based Services <ul style="list-style-type: none">• Show cheaper or better product in near-by stores• Mobile coupons (e.g. rebate for movie after scanning DVD of same genre)	
Development and integration of community functions <ul style="list-style-type: none">• Website: profiles, scan history, adding product information (Wiki-like principle)• Mobile micro blogger (cp. Twitter, Plazes or flirt features)	
2D barcodes/ image recognition/ RFID <ul style="list-style-type: none">• Additional barcode standards: support for 2D barcodes (all-in-one reader)• Recognition of logos, titles, RFIDs in case barcode not available	
Integration of retailer/ manufacturer information <ul style="list-style-type: none">• Retailers and manufactures can provide content (clearly separated)• Special marketing campaigns for manufactures and retailers	
Product chat <ul style="list-style-type: none">• Real time communication with other users with same interest• Mobile or internet based possibility for questions and answers	

Team with years of shared business experience and good competency mixture

Tobias Bräuer



- 1st place world championship Robocup Rescue Simulation

Martin Scheerer



- 1,5 years trainee in Future Studies Section, European Space Agency

Benjamin Thym

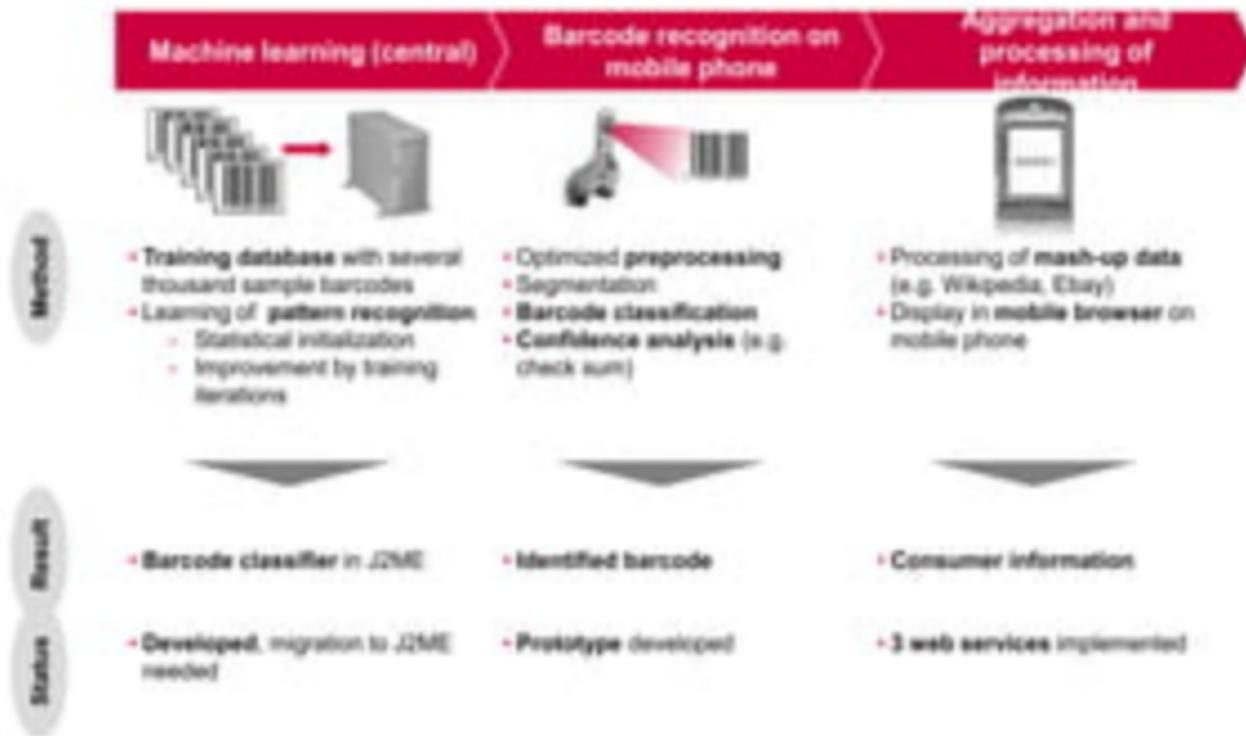


- 3 years strategic IT-consultant

- Developing software **successfully together** since 1999
- Competencies in **technology** and **commerce**

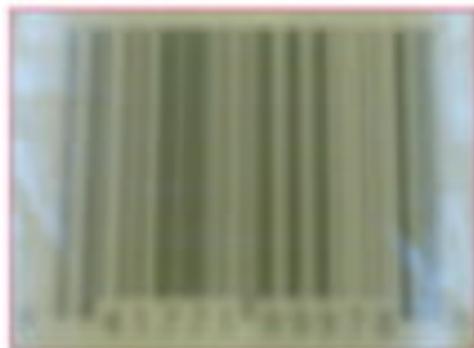
barcoo is supported by an experienced **advisory board** and part of the **Humboldt University** Innovations network

Barcode scanner based on machine learning – increased training improves recognition rate



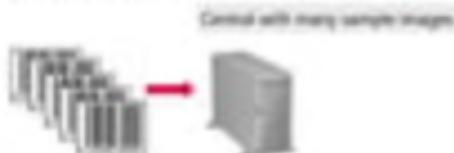
1D barcodes currently not recognized by mobile phones – machine learning algorithm enables recognition

Technical challenge: blurry images



- Fine bars of a 1D barcodes
- **Low-cost optics** of mobile phone cameras¹
- **Programming interfaces** can not access advanced functionality (e.g. macro- and auto focus mode)²

Solution by machine learning



- **Preprocessing**
 - Histogram normalization
 - Use of Landweber method for inverse point spread function
 - Segmentation and region of interest detection
- **Machine learning**
 - Database of many sample images is used to train the classifier
 - Classifier is deployed to the mobile phone
 - Trained classifier is used to recognize barcode images
 - Classifier generalizes and can decode any valid code, even if was not stored in training database

¹ Japanese mobile phones often come with a specialized macro lens

² Solutions for smart systems (e.g. Symantec, 2008, 04, 23) with low market share since Symantec expects that QR 2D will not have a significant market share in the next years

Patent situation investigated – scanning of barcodes in Europe not patentable

Many existing services

Price comparison, product reviews

- Many services in Europe
- Trivial business model

Barcode scanner

- **Pure software patent in Europe not enforceable**, because contains no "further technical effect"¹
- Already 11 different standards in 2D domain with more than **20 service providers**

Check of accepted/ pending patents

Accepted patents

- EP0645729B1
- EP0856812B1
- US7237721
- US6687345

Pending patents

- WO9949640A1
- WO2005017812
- US20060138237A1

Declined patents

- WO05122021A1
- GB02383231A1

Research was supported by
(professional IP management)



¹ Source: European Patent Office ("a program for a computer is not patentable if it does not have the potential to cause a "further technical effect" which must go beyond the inherent technical interactions between hardware and software")

Profit and loss statement (projected)

	2008				2009				2010				2011			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Income					1	21	45	63	121	123	123	124	233	234	235	237
Expenses																
Operating income	0	0	0	0	1	21	45	63	121	123	123	124	233	234	235	237
Purchases (1)																
Personnel costs (2)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Salaries	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project materials	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Traveling expenses																
Other expenses																
Other operating expenses (3)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other																
Electricity gas water																
Insurance fee																
Office expenses																
Phone fee internet																
Transport																
Leasing charge																
Other services																
Publicity																
Leasing, operating expenses																
Legal services and consultants																
Other cost																
Operating profit	0	0	0	0	0	0	0	0	121	123	123	124	233	234	235	237
Operating profit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Public benefits (4)																
Investment income																
Results																
Income at profit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Net operating	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Income (projected)

Quarter	2008				2009				2010			
	01	02	03	04	01	02	03	04	01	02	03	04
Income (in TE)	147				176				188			
Full screen advertisement after request sent	0	23	41	81	41	105	113	113	105	105	104	104
Advertisement on result page	0	2	2	4	4	11	11	1	6	9	11	11
Shipping commissions	0	0	0	0	11	10	10	14	20	20	20	20
Advertisement on partner community pages	0	0	0	0	1	0	0	1	0	0	4	4
Location based services (e.g. mobile coupons)	0	0	0	0	0	0	4	4	0	0	1	4

Assumptions:

- Scan rate of power user's month: 20 10% share
- Scan rate of normal user's month: 2 30% share
- Scan rate of non user's month: 0.28 90% share
- Average scans per month: 3.8
- Revenue per full screen ad: 2.10 € (corresponds to CPT of 100€)
- Average cost per click: 0.30 €
- Click rate mobile internet 2008: 2.0% (Source: IZ 2007 5-7%, 14Week 2007 2.0%)
- Click rate mobile internet 2010/11: 1.5% (Convergence with click rate of traditional internet)
- Conversion for shopping links: 1.8%
- Average shipping commission: 0.75 €
- Click rate traditional internet: 0.2% (Source: AdTech 2007)
- Share of users using the community page: 30.0%
- Hits on community page per community user's month: 20
- Average payment per click on community pages: 0.44 €
- Possibility to offer location based services: 0.0%
- Conversion location based services: 0.0%
- Revenue per location based service: 0.75 €

Marketing costs (projected)

Quarter	2008				2009				2010				Costs new user	
	01	02	03	04	01	02	03	04	01	02	03	04		
Marketing costs (in T€)	41				79				89				5.55	
Classical marketing	12	8	10	11	10	11	10	10	11	10	10	10	10	10.8
- Press releases (incl. tech magazines)	2	0	0	0	0	0	0	0	0	0	0	0	0	0
- Keyword placements in search engines	2	0	0	0	0	0	0	0	0	0	0	0	0	0.20
- Marketing by providers and content portals														0.00
- Marketing support for founders (average effort: net)				2										0.00
Viral marketing	11	0	1	0	10	12	14	16	16	17	18	18	0	0
- Semi-public beta phases														0.00
- Support bloggers with information														0.00
- Affiliate programs with partners		2	2	2	2	2	4	5	4	4	4	4	0	2.00
- User credits users (credits)	1	2	4	4	5	5	5	5	5	5	5	5	0	2.00
- Amateur video series on YouTube	0													0.70
- T-shirt for super users (in 1.000 euros)	0	1	0	0	0	0	0	0	0	0	0	0	0	0.00
- Word-of-mouth advertising														0.00

Assumptions:

- Not including direct personal costs
- Not including VAT
- Average costs per click 0.004
- Key word placements per month 400
- Average clicks per day and key word 0
- Reward for each new active user (affiliate) 2€
- Reward for each new active user payment in amazon vouchers (maximum 10€) 2€

User numbers (projected)

Country	2006				2007				2008			
	Jan	Feb	Mar	Apr	Jan	Feb	Mar	Apr	Jan	Feb	Mar	Apr
Sum of users joined averages	1,000	2,125	3,250	4,375	5,500	6,625	7,750	8,875	10,000	11,125	12,250	13,375
Sum of users lost of period values	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sum of users	1,000	2,125	3,250	4,375	5,500	6,625	7,750	8,875	10,000	11,125	12,250	13,375

Assumptions

- Loss of users due to change of mobile phone: 0.0%
- 2.1% per month
- Loss of users due to cancellation per month: 0.0%

Country	2006				2007				2008			
	Jan	Feb	Mar	Apr	Jan	Feb	Mar	Apr	Jan	Feb	Mar	Apr
New users	20,000											
Operational marketing	1,000	2,125	3,250	4,375	5,500	6,625	7,750	8,875	10,000	11,125	12,250	13,375
- Press releases, press, TechCrunch.com	500	1,062	1,625	2,187	2,750	3,312	3,875	4,437	5,000	5,562	6,125	6,687
- Personal connections to search engines	500	1,062	1,625	2,187	2,750	3,312	3,875	4,437	5,000	5,562	6,125	6,687
- Marketing by partners, PR, content partners	0	0	0	0	0	0	0	0	0	0	0	0
Word marketing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
- News articles, press photos	0	0	0	0	0	0	0	0	0	0	0	0
- Content strategies, web information	0	0	0	0	0	0	0	0	0	0	0	0
- Other programs, web partners	0	0	0	0	0	0	0	0	0	0	0	0
- User's friends, social networks	0	0	0	0	0	0	0	0	0	0	0	0
- Content, video, articles on YouTube	0	0	0	0	0	0	0	0	0	0	0	0
Sum of mobile marketing	1,000	2,125	3,250	4,375	5,500	6,625	7,750	8,875	10,000	11,125	12,250	13,375

Assumptions

- Conversion of visitors to press releases: 50%
- Web search placements per month: 400
- Average clicks per day and key word: 0
- Click conversion: 10%
- Coverage per video uploads: 20,000
- Conversion video views: 0.2%
- Breakdown effect by public mobile usage: 0.0%

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- Transparency for market and product
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1. Partner programs for shopping and product information via web services mostly available for free
2. Start with product categories: Consumer electronics, DVD/ CD, books
– after 10/2009 food, drugstore products, DIY

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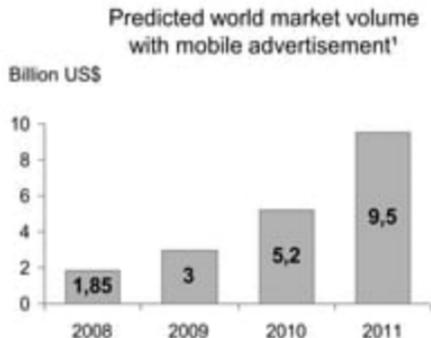
Later campaigns and location based services

- Marketing campaigns for manufactures e.g. "Scan all 3 new flavors and you get a free ring tone"
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- User base necessary, therefore start in Q3 2009 planned

1. No affiliate program yet

High revenues with mobile advertisement expected – Medium-term target group young online shoppers

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- Accelerated growth with cheaper mobile internet flat rates
- "mobile will be a larger business than the PC-Web"³

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Focus on viral marketing – first winning the multipliers

Marketing plan 2008/2009

Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug

Classical marketing

- Press releases (e.g. in tech magazines)
- Keyword placement in search engines

Continuous performance control

Viral marketing

- Semi-public beta phase
- Barcoo-Blog und support of other bloggers
- Affiliate programs with partners
- Users create users (Reward)
- Amateur video series on YouTube

Go-live

barcoo differs from competitors in completeness of information and 1D barcode scanner

Comparison of barcoo and main competitors	1D barcode					2D barcode			Price comparison/ product information					barcoo				
Legend: + Supported o No productive service available/ announced (research project, etc.)	Competitor	Android Scan	Amazon.jp	BaToo	CamClic	Gravitec	Scanbuy	Google zXing	Thrum	BeeTagg	Billiger.de	Guenstiger.de	FruCALL		ciao.com	dooyoo.de	essen & trinken	hFood
1D scanner (high end mobile phones)		+	+	(2)	+	+		+										+
1D scanner (low end mobile phones)			(1)	(2)														+
2D scanner					+	+	+	+	(3)	+								
Input of EAN-13 possible		o	+	o	o							+	+		+		+	+
Offers independant information		o		o	o			o			+	+	+	+	+		+	+
Price comparison		o			o						+	+	+	+	+			+
User reviews		o	+		o			+			+	+		+	+			+
Eco information																		+
Allergy information				o														+
Background information (e.g. recipes)		o		o	o												+	+
Free for end user (not including cost of internet)		o	+	o	+	+	+	+	+	+	+	+	+	+	+	+	Tbd.	+
German market						+		+	+		+	+		+	+	+	+	+
Location based services (e.g. nearest shop)		o						o										+
B2B focused					+	+	+	+		+								+

(1) Standard mobile phones in Japan have better optics

(2) Barcode recognition works only with extra lens mounted on mobile phone

(3) Use of picture of book cover instead of barcode