

**22nd Century Group, Inc. (XXII - \$0.91 - Buy)**

**COMPANY NOTE**

**JAMES McILREE, CFA**, Senior Analyst, 646-465-9034  
jmcilree@chardancm.com

**Sales and trading** 7 a.m. to 7 p.m. ET, (646) 465-9090

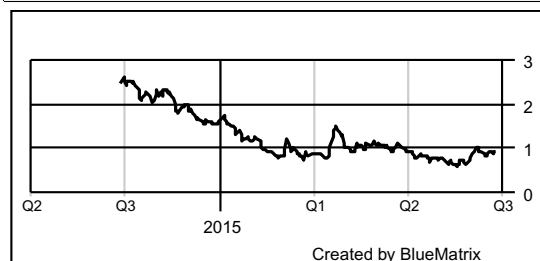
**Sales and trading** 7 p.m. to 7 a.m. ET, (646) 465-9063

<b>Stock Data</b>		<b>09/25/15</b>
Price		\$0.91
52 Week Range		(\$0.56 - \$2.78)
Price Target		\$9.00
Market Cap (mil)		\$64.49
Shares out (mil)		70.87
3-Mo Avg Vol		320,531
Cash per share		\$0.12
Total Debt (mil)		\$1.11

<b>EPS (\$)</b>						
Yr Dec	2014A		2015E		2016E	
	Actual	Curr	Prev	Curr	Prev	
Mar	(0.09)	(0.06)A	–	(0.03)	–	
Jun	(0.03)	(0.02)A	–	(0.03)	–	
Sep	(0.05)	(0.03)	–	(0.02)	–	
Dec	(0.09)	(0.02)	–	(0.02)	–	
YEAR	(0.26)	(0.13)	–	(0.10)	–	
P/E	(3.5)x	(7.0)x	–	(9.1)x	–	

<b>Revenues (\$ millions)</b>						
Yr Dec	2014A		2015E		2016E	
	Actual	Curr	Prev	Curr	Prev	
Mar	0.4	0.6A	–	2.4	–	
Jun	0.0	2.3A	–	3.0	–	
Sep	0.1	2.3	–	3.8	–	
Dec	0.0	2.3	–	4.5	–	
YEAR	0.5	7.5	–	13.6	–	

**One year price history XXII**



**Modified Risk a Key Value Driver**

Recent actions by 22nd Century highlight one of the key value drivers for 22nd Century: the potential for the company to receive a modified risk or reduced exposure designation from the FDA. Successfully achieving this designation, we believe, would allow the company to produce a highly differentiated product in a market where regulators have increasingly removed that ability. For instance, last month the FDA sent warning letters to Santa Fe Natural Tobacco Co, ITG Brands and Sherman's 1400 Broadway NYC stating Natural American Spirit and Winston brands advertising of their cigarettes as "additive free" or "natural" violates federal regulations.

Consumers have demonstrated they want a product they believe has less risk, but the FDA has stringent guidelines preventing companies from making that claim unless they complete the FDA's modified risk program. This action adds another restriction to the industry, the first time the FDA has targeted "natural" or "additive-free" as an implicit modified risk claim. We believe 22nd Century is the only cigarette company with the technology capable of satisfying the FDA's guidelines for a modified risk claim and enabling cigarette companies to again differentiate their products. The ability to differentiate products we believe is a potent competitive advantage.

22nd Century is targeting submitting a modified risk application this fall for its proprietary BRAND A very low nicotine tobacco cigarettes. If it can secure sufficient funds for additional exposure studies, it would submit a modified risk application to the FDA for its BRAND B cigarette. BRAND B has the world's lowest-tar-to-nicotine ratio. There has been only one modified risk application made by the industry to date, and that application was denied.

Earlier this month the company hired Gregg Gellman as Director of Business Development and Regulatory Affairs to guide the process. Mr. Gellman managed the design process and commercialization of multiple FDA-regulated products while with Greatbach as a medical device manager.

In addition to the BRAND A modified risk application we expect further catalysts for the shares this year. These catalysts include the roll-out of RED SUN in the US, MAGIC in Europe and contract manufacturing. Other pivot points for the stock include 22nd Century's pursuit of multiple JVs in Asia (China, Japan, and South Korea) and it intends on consummating at least one of them this year. In addition, the company is hoping to close a deal to fund a phase 3 study for X-22.

At the end of Q2 the company had \$8.2 million in cash and is set to receive \$600 thousand this month in settlement of a legal dispute. The company anticipates this gives it a 12 month runway but we think it is longer than that, and that assumes the operating losses remain at

current levels, and we do not believe that will be the case. We do not anticipate the company to need to tap the capital markets over the next 24 months unless the sales ramp of REDSUN and MAGIC are far in excess of what we anticipate.

We remain positive on the shares given near-term revenue generation for multiple sources but clearly the story has taken longer to develop than we expected. We believe there is a good chance the company will exceed our revenue estimates and there is upside possible from its Asian joint venture. Our \$9 price target is driven by a sum-of-the-parts methodology comprised of the discounted present value of the projected BAT license revenue, the discounted value of commercial product sales, RED SUN and MAGIC, and a value for the company's modified risk and X-22 initiatives.

### **Investment Summary:**

We expect meaningful revenues to begin from product sales of the company's proprietary RED SUN and MAGIC brands. Over the longer-term 22<sup>nd</sup> Century will pursue the \$1 billion US smoking-cessation market with its proprietary X-22 cigarette, and will file with the FDA applications for modified risk cigarettes.

The value of this technology was validated by BAT in October of 2013 when it signed a worldwide research license agreement with 22nd Century. The company received a \$7 million payment in Q4 of 2013. BAT has the option to turn this research license into a royalty-bearing commercial license at any time.

### **Valuation:**

We approached valuation from a sum-of-the-parts perspective to arrive at our \$9.00 price target. We discounted the projected BAT license revenue at 10% and in the low case assumed the license terminated in 2028, while in the high case we assumed the license was extended by an additional 15 years.

For the commercial products we assume RED SUN and MAGIC can achieve \$150 to \$200 million in sales by 2023. Our EV/Sales valuation ranges are comparable to the 3.6x to 5.2x EV/Sales multiples awarded to Altira, British American Tobacco, Lorillard, Reynolds American and Philip Morris International.

Our modified risk/X-22 valuation of \$2 to \$4 per share is derived in a number of ways. E-cigarette makers, Victory Electronic Cigarettes and Vapor Corp., proxies for modified risk valuations, have enterprise values of \$499 million and \$141 million respectively. This equates to \$2.42 per share using the lower EV as a bogey. X-22 valuation using a modest market share of the smoking cessation market and EV/Sales of 2x to 3x also yields per share valuation to 22<sup>nd</sup> Century of over \$2 per share. We have heavily discounted these assumptions due to the longer-term nature of development of these lines of business as well as the additional capital required for them.

### **Risks to achievement of target price:**

Risks to achieving our price target: We have assumed the commercial product growth trajectory will be similar to American Spirit, but changes in the industry can hinder 22<sup>nd</sup> Century from achieving our estimates. We have also assumed the BAT license will change from a research license to a commercial royalty-bearing license, but that too is not assured. The industry is subject to significant regulatory constraints, litigation, societal views on smoking and changing legislation. Any one of these could have a deleterious impact on our assumptions.

### **Company description:**

22nd Century owns or exclusively controls 185 issued patents, 54 pending patent applications. The company's proprietary technology enables the control of nicotine levels in tobacco plants by controlling the genes responsible for nicotine production in tobacco plants.

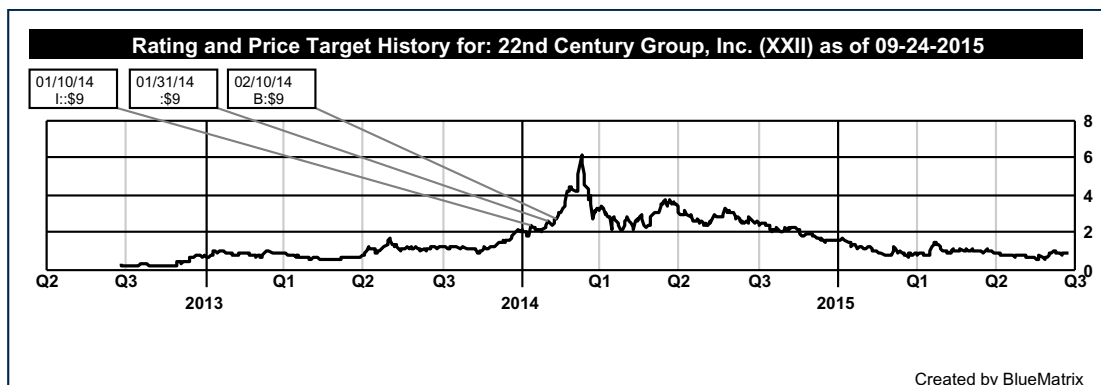
22nd Century Group, Inc  
Income Statement \$ in 000s

	2012	2013	2014	Q1 15	Q2 15	Q3 15 E	Q4 15 E	2015 E	2016 E
Revenue	\$ 19	\$ 7,278	\$ 529	\$ 616	\$ 2,307	\$ 2,250	\$ 2,300	\$ 7,473	\$ 13,625
Cost Of Goods Sold	68	462	498	633	2,600	1,945	1,890	7,068	9,813
Gross Profit	(49)	6,817	31	(16)	(293)	305	410	405	3,813
R&D	729	744	1,249	183	308	400	400	1,291	2,000
G&A	2,205	4,107	8,793	3,644	1,291	1,291	1,291	7,516	7,380
Pre-Mfg. Facility Costs	0	0	1,177	0	0	0	0	0	0
Sales & marketing	62	9	86	115	291	250	250	906	1,400
Depreciation & Amort.	198	144	463	161	164	150	150	625	700
Opex	3,195	5,004	11,768	4,103	2,053	2,091	2,091	10,337	11,480
Operating Income	\$ (3,244)	\$ 1,812	\$ (11,737)	\$ (4,119)	\$ (2,347)	\$ (1,786)	\$ (1,681)	\$ (9,932)	\$ (7,668)
Interest Expense	(1,495)	(749)	(7)	(6)	(14)	(2)	(2)	(23)	(8)
Other	0	122	(30)	(51)	959	0	0	908	0
Warrant Charge	(1,998)	(27,339)	(3,821)	59	113	0	0	172	0
Pretax Income	(6,737)	(26,153)	(15,595)	(4,117)	(1,289)	(1,788)	(1,683)	(8,876)	(7,676)
Income Tax Expense	0	0	0	0	0	0	0	0	0
Net before Minority Interest	(6,737)	(26,153)	(15,595)	(4,117)	(1,289)	(1,788)	(1,683)	(8,876)	(7,676)
Minority Interest	1	0	0	0	0	0	0	0	0
Net to Common	\$ (6,735)	\$ (26,153)	\$ (15,595)	\$ (4,117)	\$ (1,289)	\$ (1,788)	\$ (1,683)	\$ (8,876)	\$ (7,676)
Shares	30,420	43,635	59,993	64,188	66,617	67,117	67,617	66,384	78,617
EPS	(\$0.22)	(\$0.60)	(\$0.26)	(\$0.06)	(\$0.02)	(\$0.03)	(\$0.02)	(\$0.13)	(\$0.10)

22nd Century Group, Inc  
Balance Sheet and Cash Flow Statement \$ in 000s

	2012	2013	2014	Q1 15	Q2 15	Q3 15 E	Q4 15 E	2015 E	2016 E
Cash	0	5,831	6,403	3,844	8,197	8,011	7,095	7,095	2,266
Due from related party and officers	41	50	46	46	46	46	46	46	46
A/R	0	0	0	209	449	370	575	575	2,055
Settlement proceeds receivable	0	0	0	0	600	0	0	0	0
Inventory	1,231	1,406	2,065	2,563	2,382	2,598	2,552	2,552	3,587
Prepaid Consulting Fees	0	0	1,979	0	0	0	0	0	0
Prepaid Exp.	10	458	214	458	456	497	488	488	686
<b>Total Current Assets</b>	<b>\$ 1,281</b>	<b>\$ 7,744</b>	<b>\$ 10,707</b>	<b>\$ 7,120</b>	<b>\$ 12,130</b>	<b>\$ 11,521</b>	<b>\$ 10,757</b>	<b>\$ 10,757</b>	<b>\$ 8,641</b>
Patent and Trademark costs	1,353	1,545	7,078	7,166	7,206	7,145	7,083	7,083	6,838
PP&E	6	2,998	2,851	2,794	2,716	2,748	2,777	2,777	2,844
Equity Investment	0	0	1,318	1,267	1,227	1,227	1,227	1,227	1,227
<b>Total Assets</b>	<b>\$ 2,645</b>	<b>\$ 12,287</b>	<b>\$ 21,954</b>	<b>\$ 18,347</b>	<b>\$ 23,278</b>	<b>\$ 22,641</b>	<b>\$ 21,844</b>	<b>\$ 21,844</b>	<b>\$ 19,550</b>
Bank Loans and N/P	2,686	175	495	495	507	507	507	507	507
A/P	1,411	55	884	1,414	985	1,074	1,055	1,055	1,483
Accrued Expenses	503	576	1,294	537	1,435	1,565	1,538	1,538	2,161
Deferred Revenue	0	179	0	0	0	0	0	0	0
<b>Total Current Liabilities</b>	<b>\$ 4,603</b>	<b>\$ 984</b>	<b>\$ 2,673</b>	<b>\$ 2,446</b>	<b>\$ 2,927</b>	<b>\$ 3,146</b>	<b>\$ 3,100</b>	<b>\$ 3,100</b>	<b>\$ 4,152</b>
Long-Term Debt	0	0	605	605	605	605	605	605	605
Accrued Severance	0	0	412	364	307	238	170	170	0
Warrant Liability & Other	4,173	3,780	3,043	2,984	2,871	2,871	2,871	2,871	2,871
Shareholder's Equity	(6,131)	7,523	15,220	11,948	16,568	15,780	15,098	15,098	11,922
<b>Total Liabilities And Equity</b>	<b>\$ 2,645</b>	<b>\$ 12,287</b>	<b>\$ 21,954</b>	<b>\$ 18,347</b>	<b>\$ 23,278</b>	<b>\$ 22,641</b>	<b>\$ 21,844</b>	<b>\$ 21,844</b>	<b>\$ 19,550</b>
<b>Net Income</b>	<b>(6,737)</b>	<b>(26,153)</b>	<b>(15,595)</b>	<b>(4,117)</b>	<b>(1,289)</b>	<b>(1,788)</b>	<b>(1,683)</b>	<b>(8,876)</b>	<b>(7,676)</b>
Depreciation & Amort.	198	144	463	185	139	154	158	637	677
Stock Comp	808	980	2,293	354	332	500	500	1,686	2,500
Other	3,866	29,386	6,740	2,139	15	(69)	(69)	2,017	(170)
Working Capital	100	(501)	(483)	(1,082)	(281)	642	(198)	(919)	(1,661)
<b>Operating Cash Flow</b>	<b>\$ (1,764)</b>	<b>\$ 3,856</b>	<b>\$ (6,583)</b>	<b>\$ (2,521)</b>	<b>\$ (1,083)</b>	<b>\$ (561)</b>	<b>\$ (1,291)</b>	<b>\$ (5,455)</b>	<b>\$ (6,329)</b>
Acquisition of Patents and trademarks	(163)	(290)	(727)	0	(139)	0	0	(139)	0
Capx	0	(3,452)	(212)	(4)	(1)	(125)	(125)	(255)	(500)
Other	0	0	(1,769)	0	0	0	0	0	0
<b>Investing Activities</b>	<b>\$ (163)</b>	<b>\$ (3,743)</b>	<b>\$ (2,708)</b>	<b>\$ (4)</b>	<b>\$ (140)</b>	<b>\$ (125)</b>	<b>\$ (125)</b>	<b>\$ (394)</b>	<b>\$ (500)</b>
Debt	225	(1,810)	(4)	0	0	0	0	0	0
Equity	1,468	7,536	9,859	(35)	5,576	500	500	6,542	2,000
Other	(17)	(9)	7	0	0	0	0	0	0
<b>Financing Activities</b>	<b>\$ 1,675</b>	<b>\$ 5,717</b>	<b>\$ 9,863</b>	<b>\$ (35)</b>	<b>\$ 5,576</b>	<b>\$ 500</b>	<b>\$ 500</b>	<b>\$ 6,542</b>	<b>\$ 2,000</b>
<b>Change in Cash</b>	<b>(\$252)</b>	<b>\$ 5,830</b>	<b>\$ 572</b>	<b>(\$2,559)</b>	<b>\$ 4,353</b>	<b>(\$186)</b>	<b>(\$916)</b>	<b>\$ 693</b>	<b>(\$4,829)</b>

## Important Research Disclosures



### Distribution of Ratings/IB Services Chardan Capital Markets

Rating	Count	Percent	IB Serv./Past 12 Mos.	
			Count	Percent
BUY [BUY]	41	71.93	16	39.02
HOLD [NEUTRAL]	13	22.81	2	15.38
SELL [SELL]	2	3.51	0	0.00
NOT RATED [NR]	1	1.75	0	0.00

### Regulation Analyst Certification ("Reg AC") — JAMES McILREE, CFA

**ANALYST(s) CERTIFICATION:** The analyst(s) responsible for covering the securities in this report certify that the views expressed in this research report accurately reflect their personal views about "Company" and its securities. The analyst(s) responsible for covering the securities in this report certify that no part of their compensation was, is, or will be directly or indirectly related to the specific recommendation or view contained in this research report.

### DISCLOSURES

Within the last twelve months, Chardan Capital Markets has received compensation for investment banking services from 22nd Century Group, Inc.. This research contains forward looking statements made pursuant to the safe harbor provision of Private Securities Litigation Act of 1995.

Chardan Capital Markets intends to seek compensation for investment banking services from all companies under research coverage. Chardan Capital Markets or its officers, employees or affiliates may execute transactions in securities mentioned in this report that may not be consistent with the report's conclusions.

### RATINGS

**Buy:** Expected to materially outperform sector average over 12 months and indicates total return of at least 10% over the next 12 months.

**Neutral:** Returns expected to be in line with sector average over 12 months and indicates total return between negative 10% and 10% over the next 12 months.

**Sell:** Returns expected to be materially below sector average over 12 months and indicates total price decline of at least 10% over the next 12 months.

**FORWARD-LOOKING STATEMENTS:** This Report contains forward-looking statements, which involve risks and uncertainties. Actual results may differ significantly from such forward-looking statements. Factors that might cause such a difference include, but are not limited to, those discussed in the "Risk Factors" section in the SEC filings available in electronic format through SEC Edgar filings at [www.SEC.gov](http://www.SEC.gov) on the Internet.

**GENERAL:** Chardan Capital Markets ("Chardan") a FINRA member firm with offices in New York City NY, Palo Alto, CA and Beijing, China is an investment banking and institutional brokerage firm providing corporate finance, merger and acquisitions, brokerage, and investment opportunities for institutional, corporate, and private clients. The analyst(s) are employed by Chardan. Our research professionals provide important input into our investment banking and other business selection processes. Our proprietary trading and investing businesses may make investment decisions that

are inconsistent with the recommendations expressed herein. Chardan may from time to time perform corporate finance or other services for some companies described herein and may occasionally possess material, nonpublic information regarding such companies. This information is not used in preparation of the opinions and estimates herein. While the information contained in this report and the opinions contained herein are based on sources believed to be reliable, Chardan has not independently verified the facts, assumptions and estimates contained in this report. Accordingly, no representation or warranty, express or implied, is made as to, and no reliance should be placed on, the fairness, accuracy, completeness or correctness of the information and opinions contained in this report. The information contained herein is not a complete analysis of every material fact in respect to any company, industry or security. This material should not be construed as an offer to sell or the solicitation of an offer to buy any security in any jurisdiction where such an offer or solicitation would be illegal. We are not soliciting any action based on this material. It is for the general information of clients of Chardan. It does not take into account the particular investment objectives, financial situations, or needs of individual clients. Before acting on any advice or recommendation in this material, clients should consider whether it is suitable for their particular circumstances and, if necessary, seek professional advice. Certain transactions - including those involving futures, options, and other derivatives as well as non-investment-grade securities - give rise to substantial risk and are not suitable for all investors. The material is based on information that we consider reliable, but we do not represent that it is accurate or complete, and it should not be relied on as such. The information contained in this report is subject to change without notice and Chardan assumes no responsibility to update the report. In addition, regulatory, compliance, or other reasons may prevent us from providing updates.

**COMPENSATION OR SECURITIES OWNERSHIP:** The analyst(s) responsible for covering the securities in this report receives compensation based upon, among other factors, the overall profitability of Chardan Capital Markets including profits derived from investment banking revenue and securities trading and market making revenue. The analyst(s) that prepared the research report did not receive any compensation from the Company or any other companies mentioned in this report in connection with the preparation of this report. The analysts responsible for covering the securities in this report currently do not own common stock in the Company, but in the future may from time to time engage in transactions with respect to the Company or other companies mentioned in the report. Chardan expects to receive, or intends to seek, compensation for investment banking services from the Company in the next three months.