



# REAL TIME AUTOMATED TRADING, POWER MARKET EVOLUTION AND CHALLENGES

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Empowering  
the Financial World



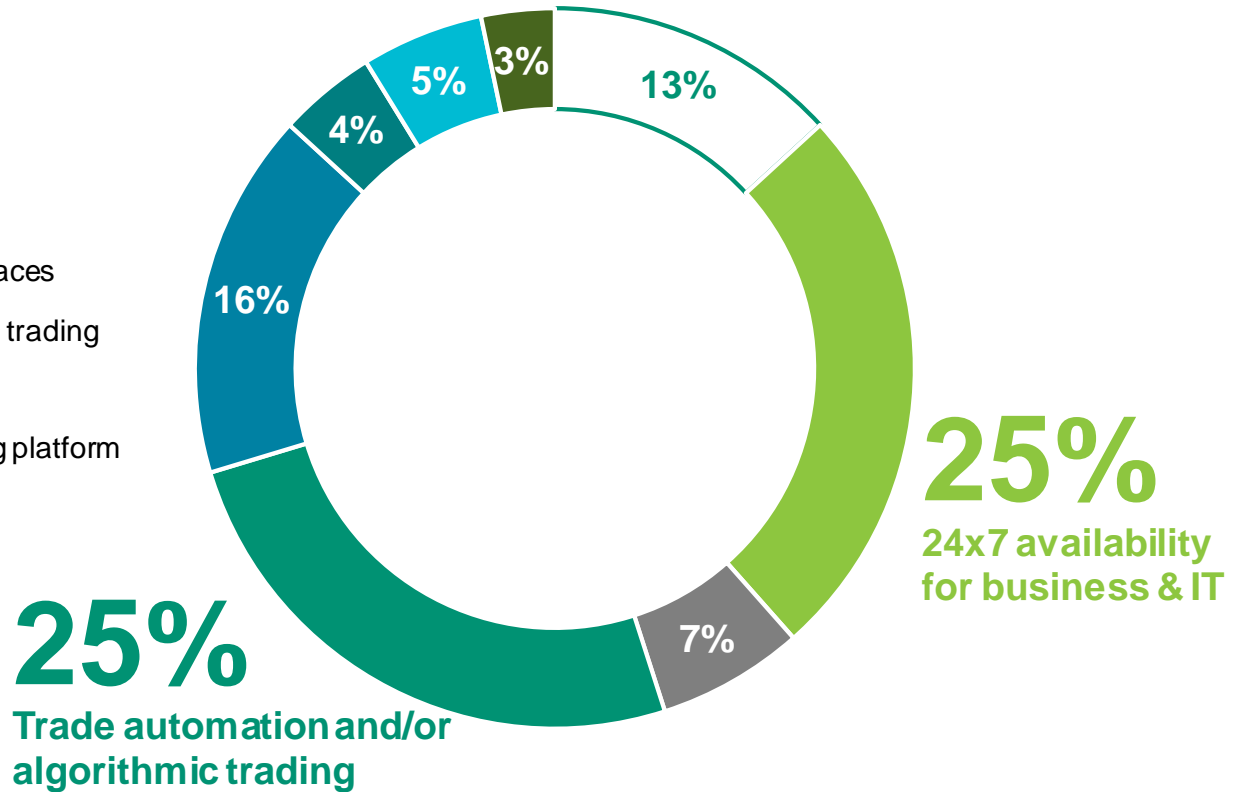
# 1

## Top Drivers and Trends in Intraday Power Trading

# What Do You See as the Greatest Challenge for Intraday Power Trading in Europe?

Market survey

- No challenge at all!
- 24x7 availability for business and IT
- User-friendly and flexible user interfaces
- Trade automation and/or algorithmic trading
- Nomination and re-nomination
- Real-time capabilities of your trading platform
- Real-time market access
- Trading solution availability in SaaS



# Trends – Market and Business Drivers



**MORE  
MARKETS**

**GROWING  
LIQUIDITY**

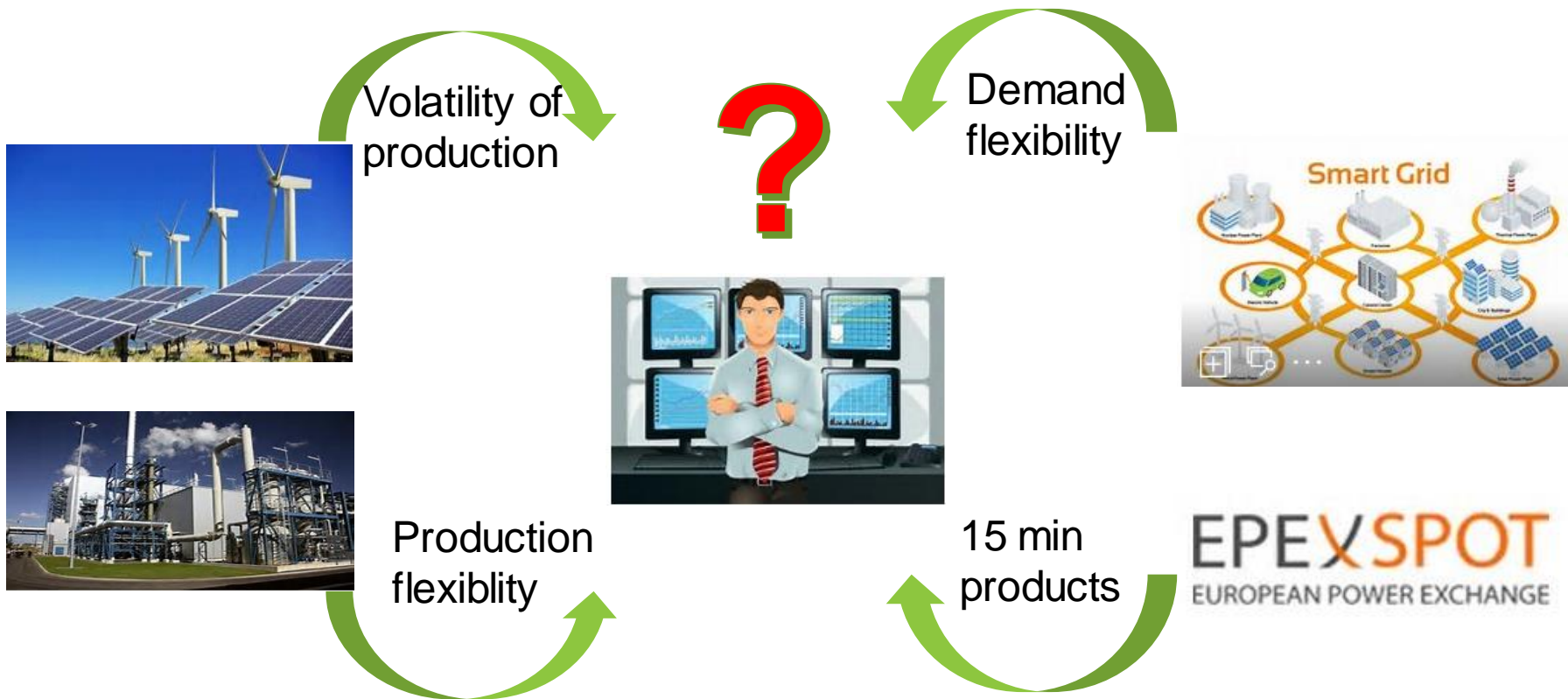
**AUTOMATION  
&  
ROBOTS**

# Market Trends and Implications

## Growing markets & liquidity

- **The rise of renewables and development of the smart grid as well as introduction of continuous trading on main power exchanges**
- **Intraday power trading is the first energy market (except oil markets) that follows financial markets towards automatization**
- **Further market integration takes place and new types of auctions and markets are invented to increase liquidity:**
  - Ancillary services markets are going intraday in Germany
  - Cross-zonal transmission capacity allocated through implicit, continuous allocation (XBID)
  - Intraday Auctions a add-on to Continuous Trading on EPEX
  - Mergers and cooperations of European Spot Exchange
  - New product traded near to delivery

# Automated Trading: Nice to Have or Necessity?



# Automated Trading as Clear Market Trend

Automation will reshape the trading landscape – similar to financial markets

- **Increased costs due to 24/7 trading**
- **Margins are not large so the bigger trading teams are not profitable**
- **Quantitative traders may eventually replace more traditional traders**
- **More than 50 robots are already on the market**
- **Robots can manage portfolios and/or execute client orders without delay and at market**
- **Human brain's limits to handle data and decision making in such a high-speed and data intensive environment**

# Market Trends and Implications

Automation will reshape the trading landscape – similar to financial markets

- **Better customer services and real-time price information**
- **Robots can manage portfolios and/or execute client orders without delay and at market**
- **Energy Trading Houses have still large teams that deal with simple client orders – most of that business could be performed by robots**
- **Traded volumes might rise significantly, but the volume of a single order might shrink significantly**
- **Velocity of trading will rise especially shortly before gate closing**
- **Managing Risk will become more import**



# Market Trends and Implications conclusions

## Conclusions

- ① Automatic trading in combination with the further development of European short-term trading markets reshapes the future of energy trading and the European utilities
- ② It is the future backbone for services like E-Mobility, advanced concepts for energy storage and future smart home and prosumer solutions
- ③ As geography grow and capacity become implicit there will be a trend towards the exchange spot trading and away from OTC

# 2

## HIGH FREQUENCY TRADING & REGULATION

# High Frequency Trading – A chance for Whom?

What are the drivers of high frequency trading

- **Many underlying asset portfolios have the same marginal costs/profit, so it's important to place the your orders quicker than the competition**
- **Placing orders quickly might open arbitrage opportunities for sophisticated traders between different trading platforms (e.g. EPEX vs. Nordpool or Trayport)**
- **Some companies are market followers and want only to “automate order execution”, others take actively position on the market**

# Balancing Market Regulation and Exchange Rules

- **Currently, energy spot markets are mostly self-regulated by the exchange rules**
- **Further regulation might help speed up the development of algo trading in energy markets**
  - New regulations force traders either (i) to withdraw from prop trading (ii) to implement costly internal “Chinese Walls” (iii) to prove that customer orders are placed and executed in a non-discriminatory way – which may be done by using incorruptible algorithms
  - Exchanges and organized market places will enforce their own rules to secure a fair competition, e.g. the implementation of a “Trade/Order Ratio”
  - Algorithms may offer an advantage
  - MAR regulation facilitates data gathering for strategy and analysis

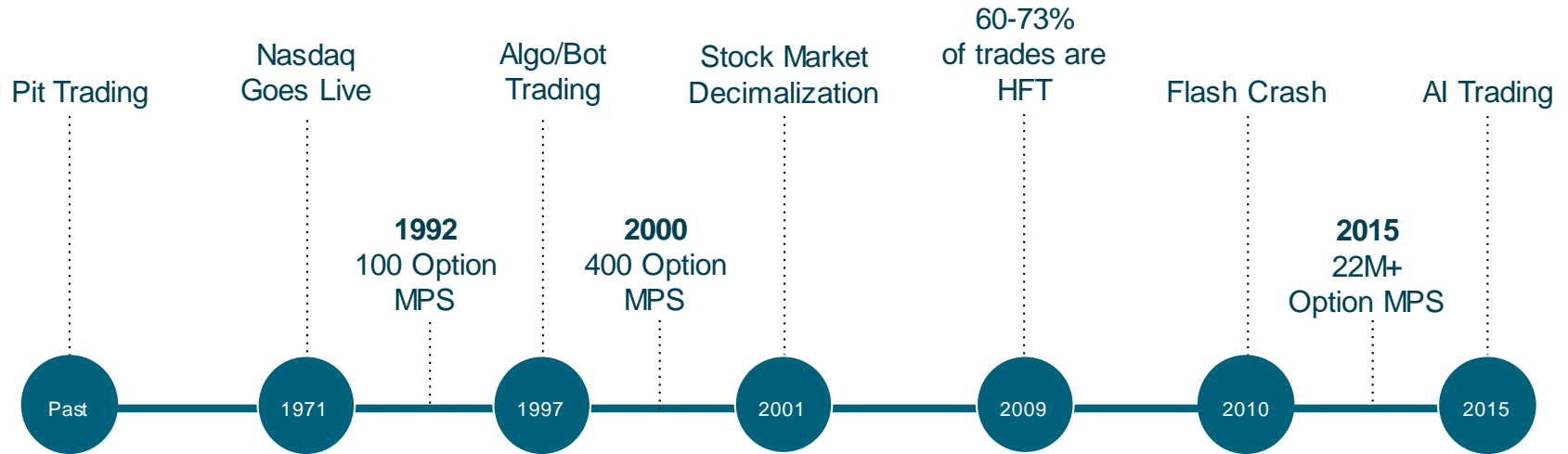


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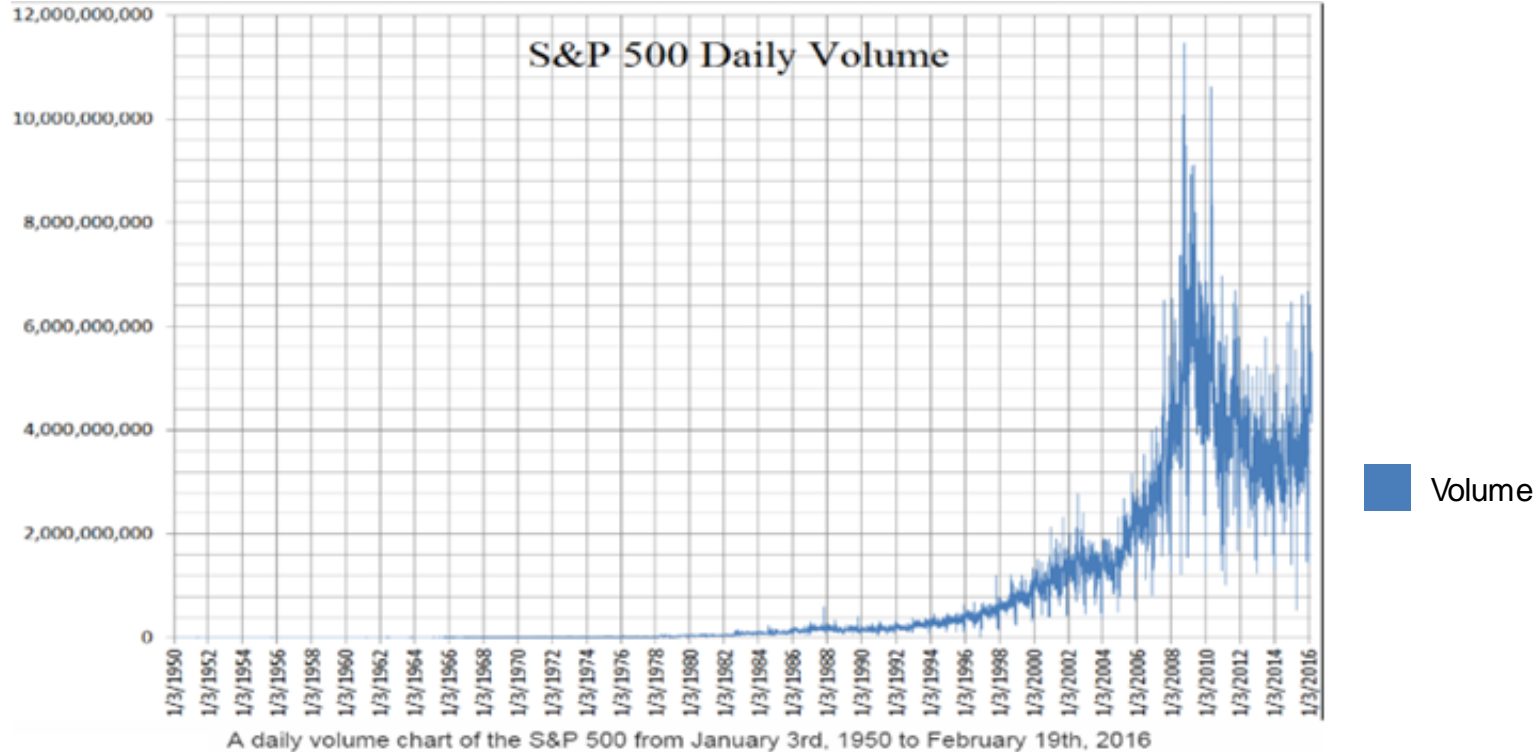
**ALGORITHMS:  
RISKS &  
OPPORTUNITIES**

# Evolution of Financial Markets

Learning about automated trading from the financial markets



# S&P 500 Daily Trading Volumes, 40 Years Window



# Automated Algorithms: Controls and Governance

With great speed, comes great responsibility to maintain the market stability

- **Learnings from the financial markets:**
  - Regulations on exchanges:
    - Circuit breakers
    - Order size or “fat-finger” limits
  - Reliability and timeliness of market data feeds
  - Organizational requirements for firms engaging in algorithmic trading
  - Governance on algorithms
- **The right mix of processes, governance and tools may not only ensure the safety of the market, but may also protect your margins and find opportunities**



“Under stressed market conditions, the automated execution of a large sell order can trigger extreme price movements. <...> Moreover, the interaction between automated execution programs and algorithmic trading strategies can quickly erode liquidity and result in disorderly markets.”

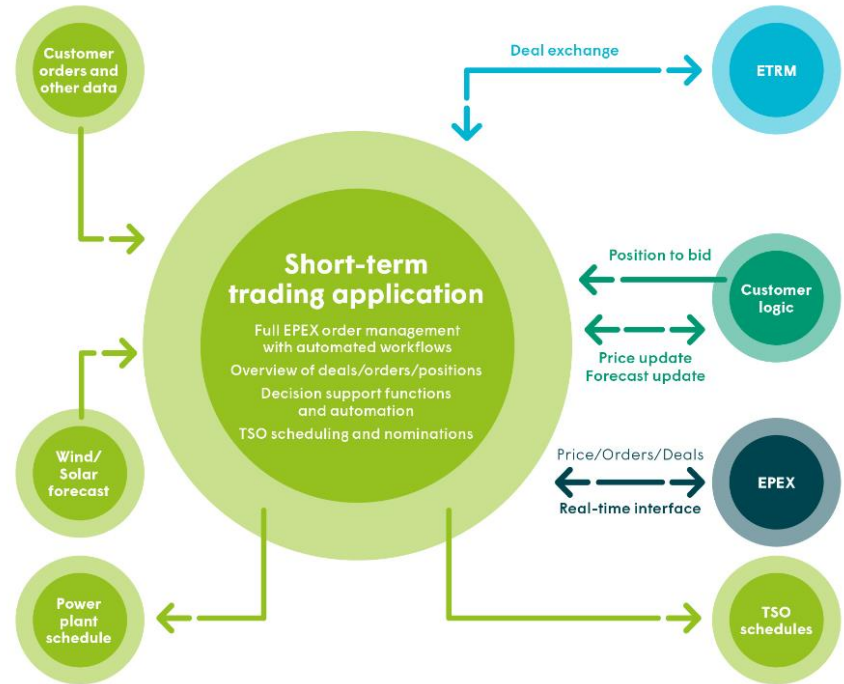
*U.S. Securities Exchange Commission’s (SEC) Findings  
Regarding the 2010 Flash Crash*



# State-of-the-Art: High-End Solution

From algorithms to integrated solutions, including position management and asset optimization

- Real-time market data
- Market order management and algorithmic trading support including custom logic
- Real-time position management (\*)
- Decision support on real-time prices (\*)
- Support for trading for 3rd parties (\*)
- Online optimization of assets and other analytics (\*)
- Intraday TSO nominations (\*)



# Competition of Algorithms

Implementing and using strategies successfully



**Automatic trade execution needs to be combined with real-time asset optimization and portfolio management**



**Successful trading strategies include effective internal portfolio management order execution at best price**



**Every trading house must develop their own automated trading strategies to have full control of the algorithms**

# Growth Opportunities & Success Criteria: From Market Follower to Active Trading

- 1 Many existing strategies are “follow-the-market” strategies
- 2 More advanced strategies try actively to execute orders
- 3 Companies are fully responsible for risk management associated with their algos
- 4 Back testing

# Conclusion

**1** Growing markets and liquidity will lead to more automation

**2** It will be difficult to catch up when more established traders have conquered the market space

**3** If entered too late in the algorithmic trading competition - significant investment will be needed

**4** A lot of companies are at the cross-road

# Questions and Answers

# FIS Can Help

## Capitalize on **real-time intraday power trading:**

- Act on market changes with automated trading algorithms
- Optimize your asset portfolio
- Jump start with SaaS or install a full solution

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For more information, email  
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**Connect with us to discuss on how you can tap into real-time intraday power trading to balance your portfolio and generate alpha.**

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