



# The Technology of an Equity Trade

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# Topics...

- Equity market backgrounder
- Business processes
- The equity systems pipeline
- Which kinds of system go where?
- Technology products you may find
- Context within a large bank

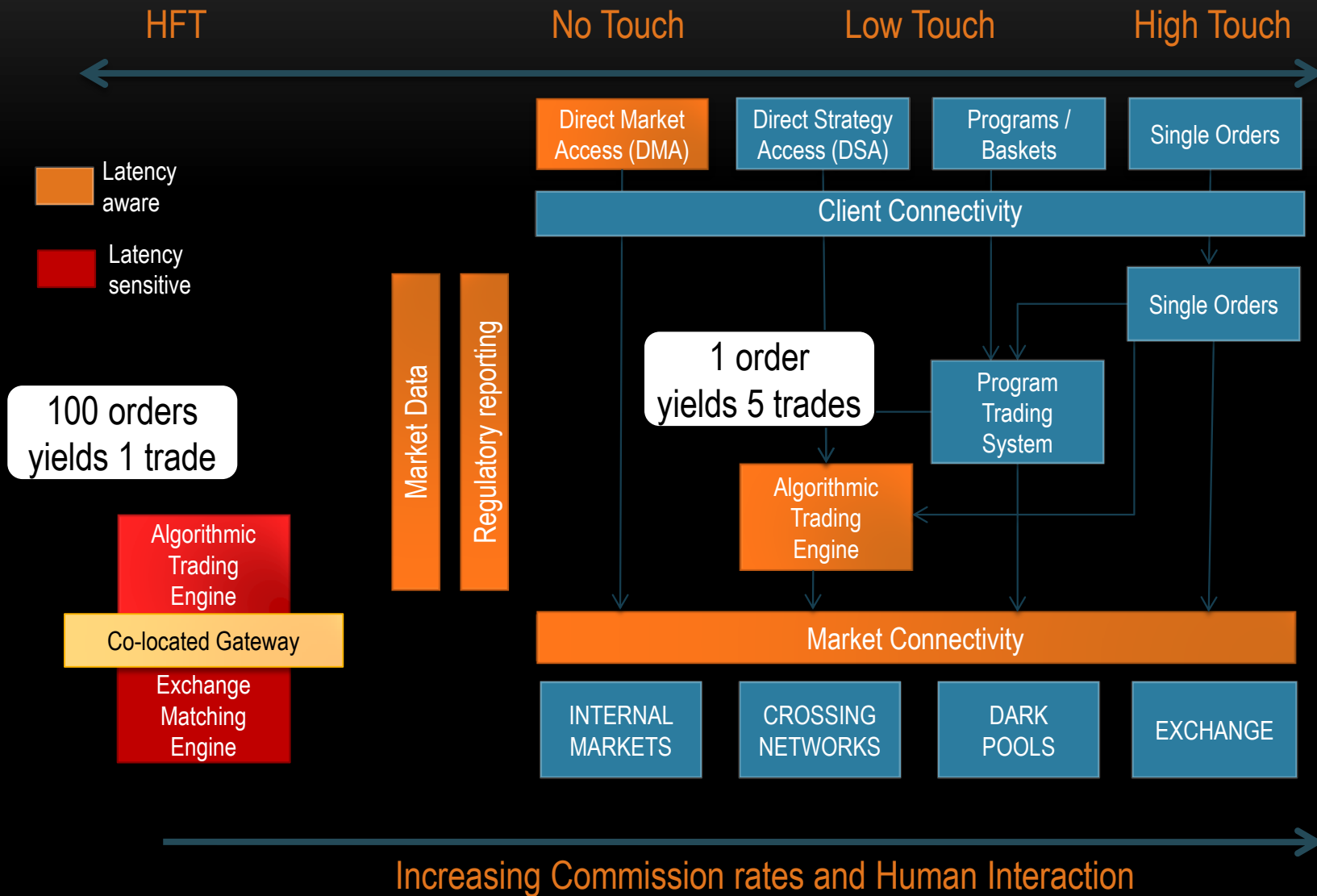
# Leading electronic equity markets

	Exchange		Exchange	Jan-Dec 2012 (in thousand)	Jan-Dec 2011 (in thousand)	%change
1	NYSE Euronex	1	National Stock Exchange India	1 406 498	1 384 112	1.6%
2	NASDAQ OMX	2	NYSE Euronext (US)	1 374 539	1 994 898	-31.1%
3	Tokyo Stock Ex	3	NASDAQ OMX	1 268 037	1 702 750	-25.5%
4	Shanghai Stoc	4	Korea Exchange	1 218 992	1 191 124	2.3%
5	Shenzhen Stoc	5	Shenzhen SE	935 565	1 030 324	-9.2%
6	London Stock	6	Shanghai SE	925 550	1 273 277	-27.3%
7	NYSE Euronex	7	BSE India	355 586	393 223	-9.6%
8	Korea Exchang	8	Tokyo SE Group	349 546	340 644	2.6%
9	TMX Group	9	London SE Group	222 029	237 939	-6.7%
10	Deutsche Börs	10	TMX Group	215 796	222 777	-3.1%

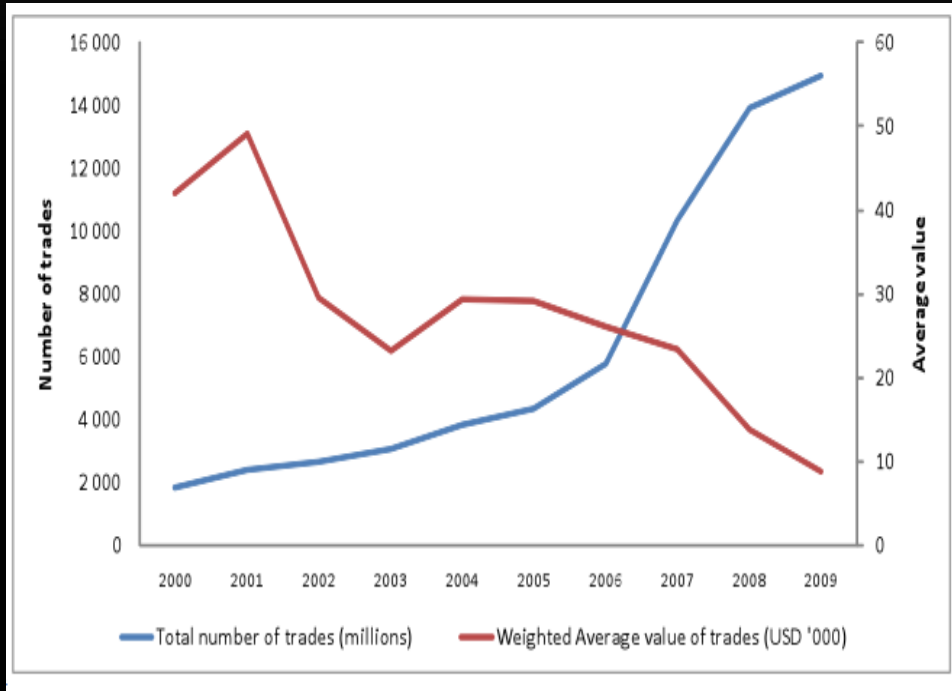
**Largest by value:** \$13 trillion on NYSE

**Largest by volume:** 1.4 trillion trades on Indian NSE

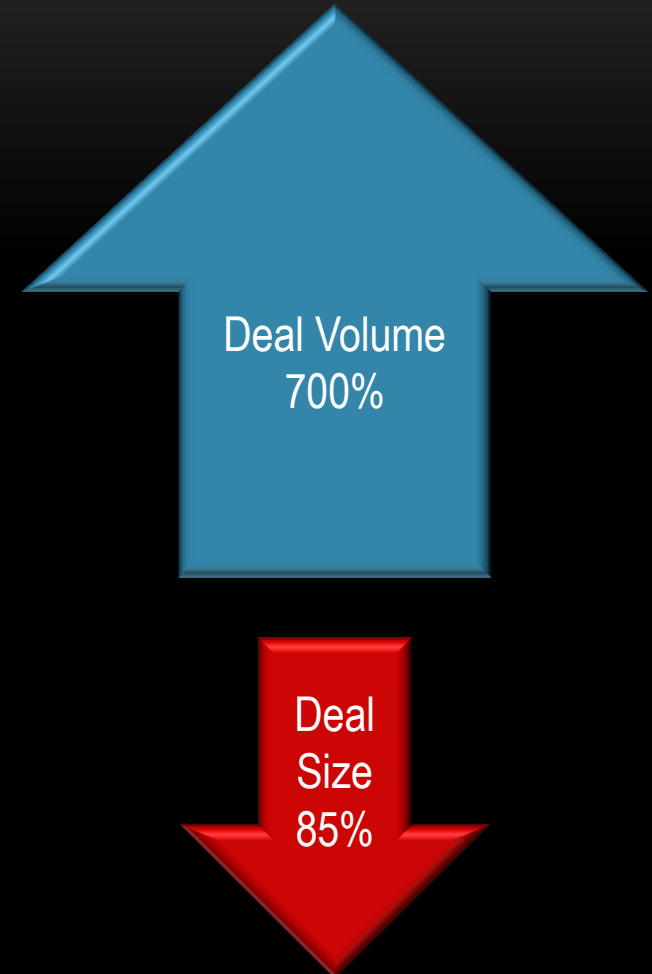
# Primary electronic trading patterns



# Equity transaction volumes



10 years



*We are much more focused today on operations and technology and being a low-cost provider than we would have articulated about ourselves 10 or 15 years ago*

Lloyd Blankfein, CEO Goldman Sachs  
November, 2012



These are not low-cost people...



*The time is right for a giant leap forward, with economic pressure and technological potential creating the conditions for change*

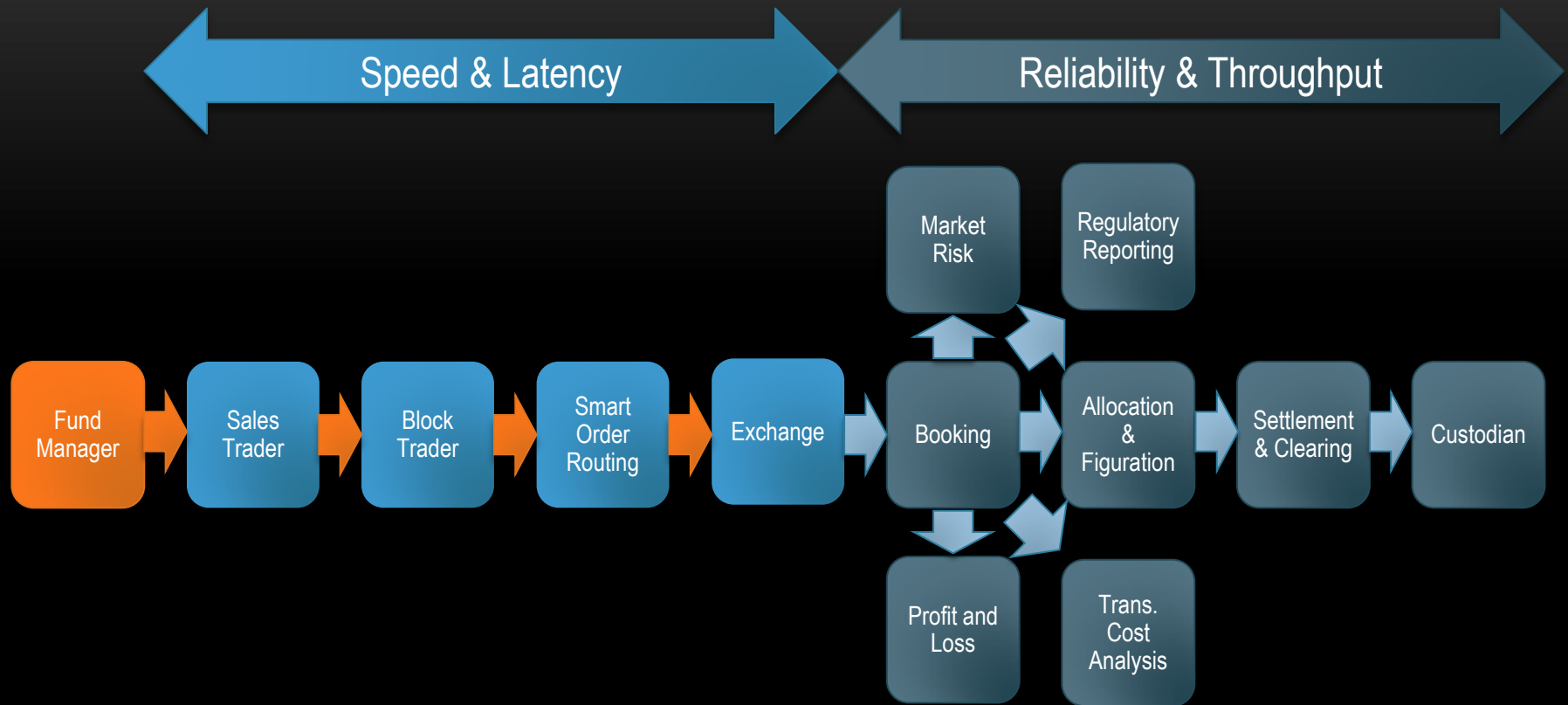
The Triple Transformation, McKinsey  
October, 2012



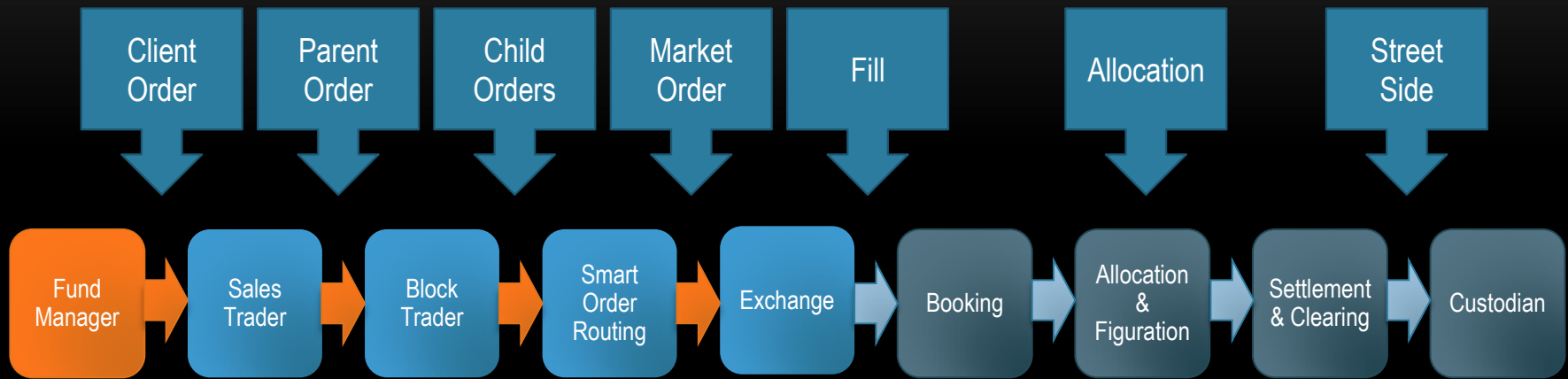
Low cost  
Scalable  
Accessible  
Innovative







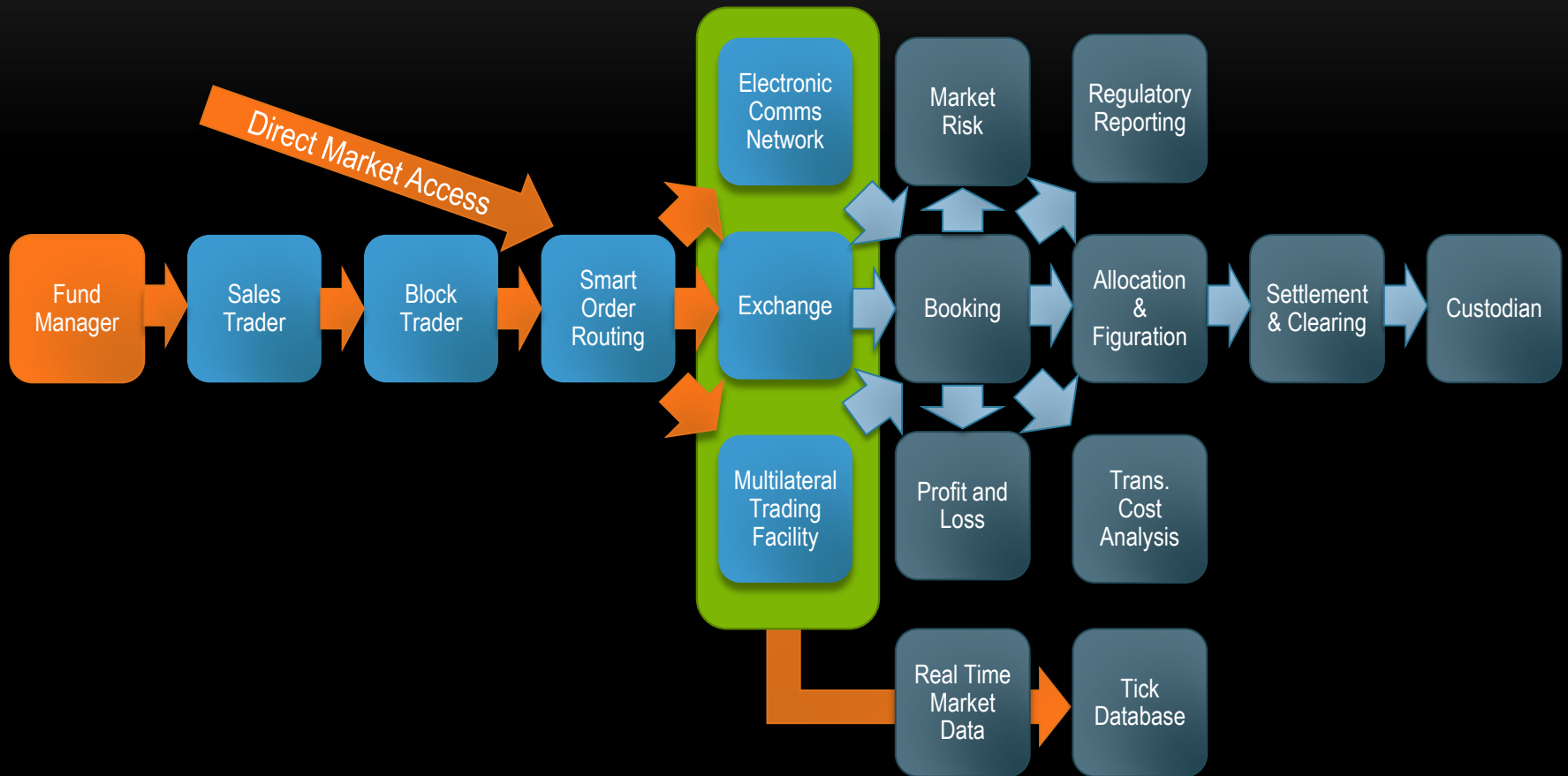
Simple order flow through systems



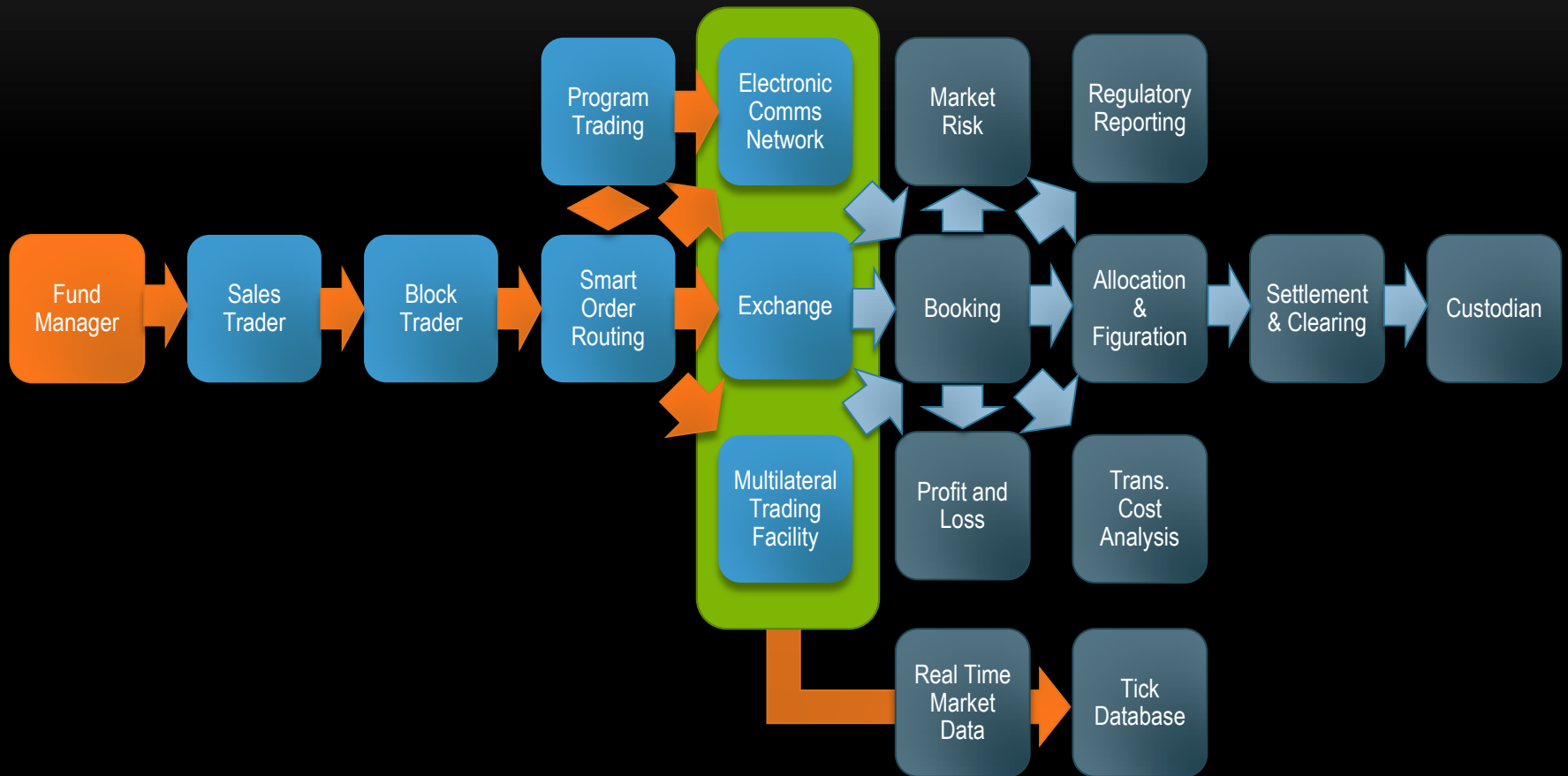
# FIX

Financial Information Exchange

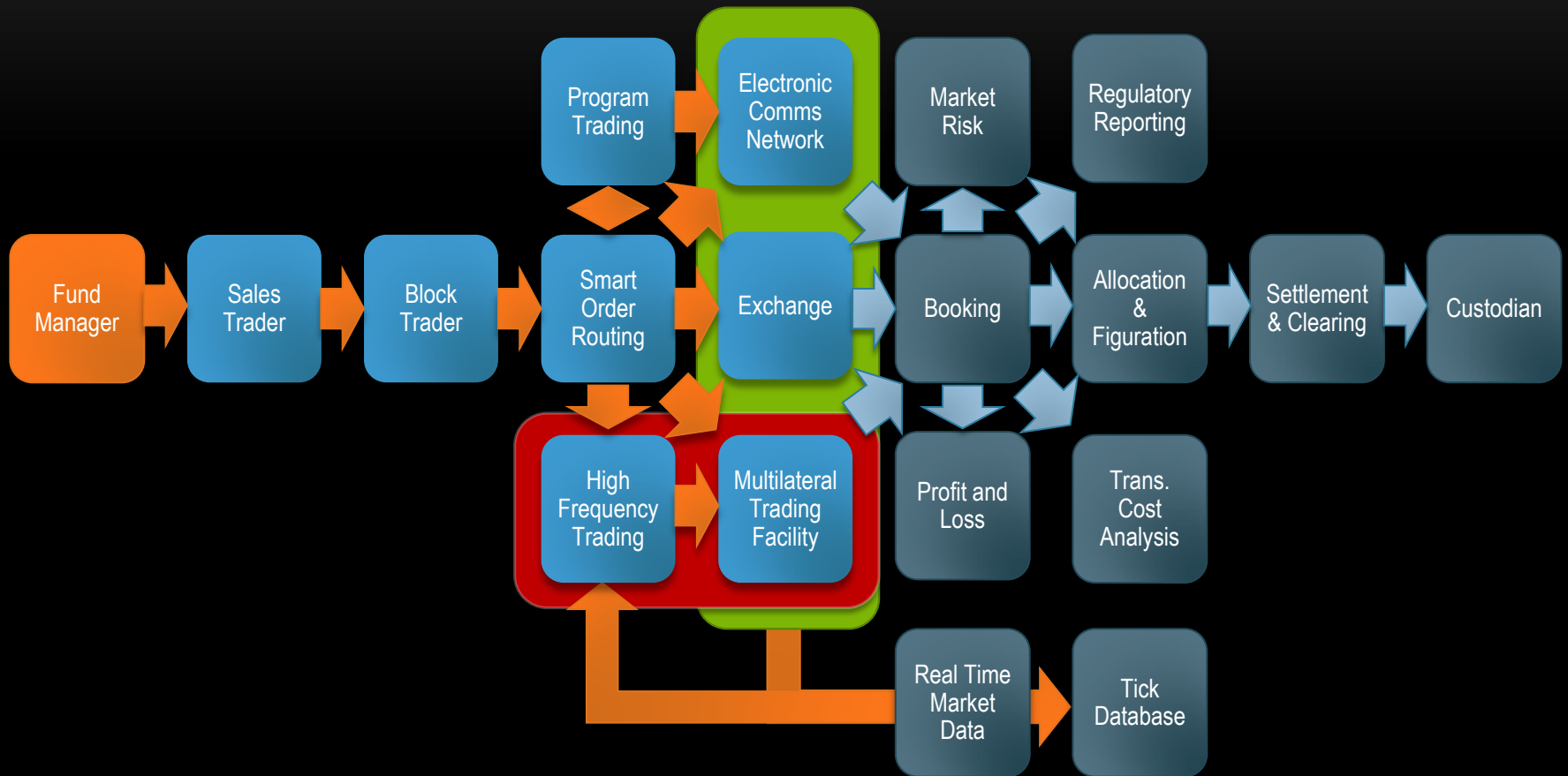
Order books and trade matching at almost every step



Global smart order routing



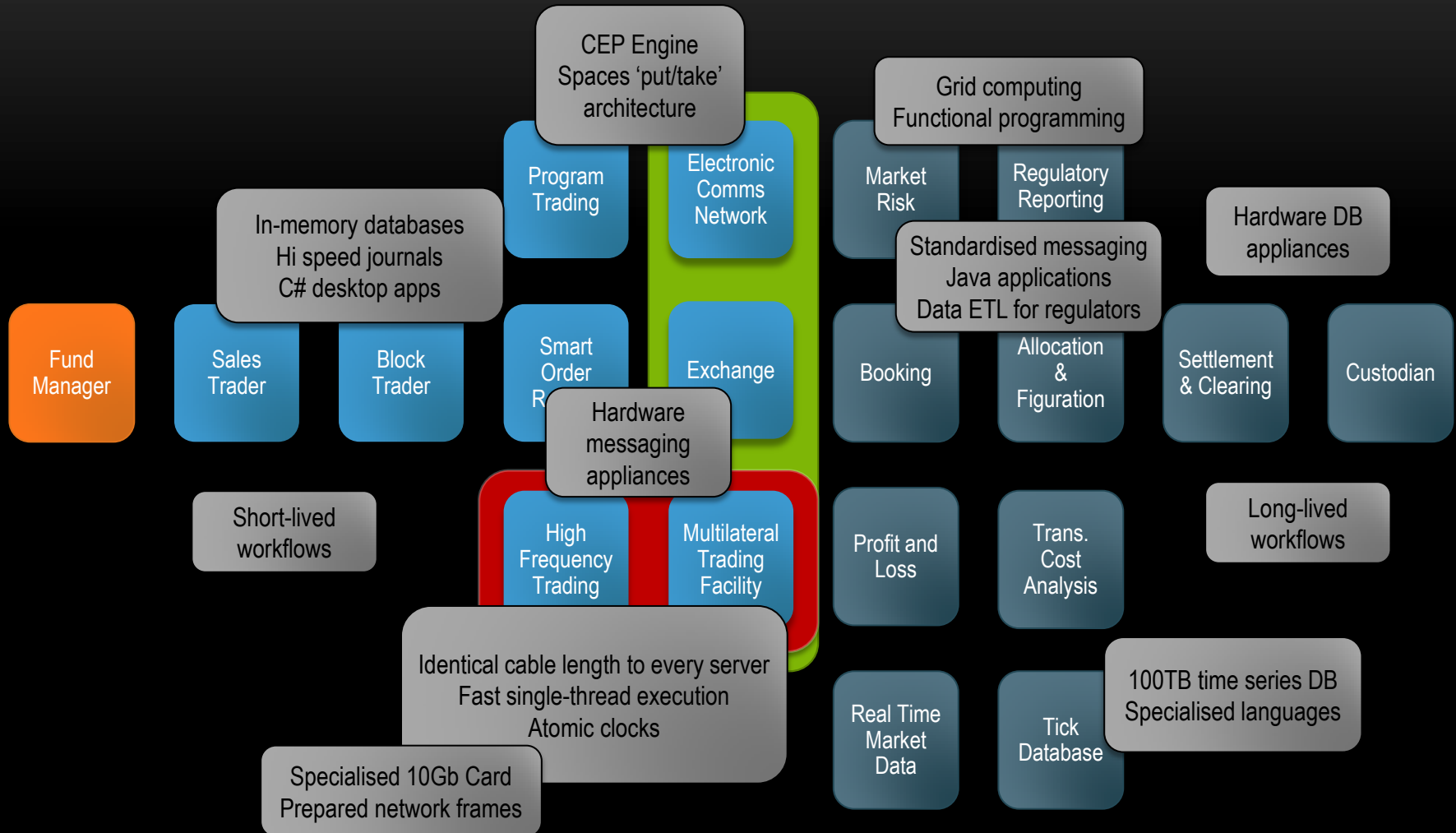
Program-trading: Process large baskets automatically



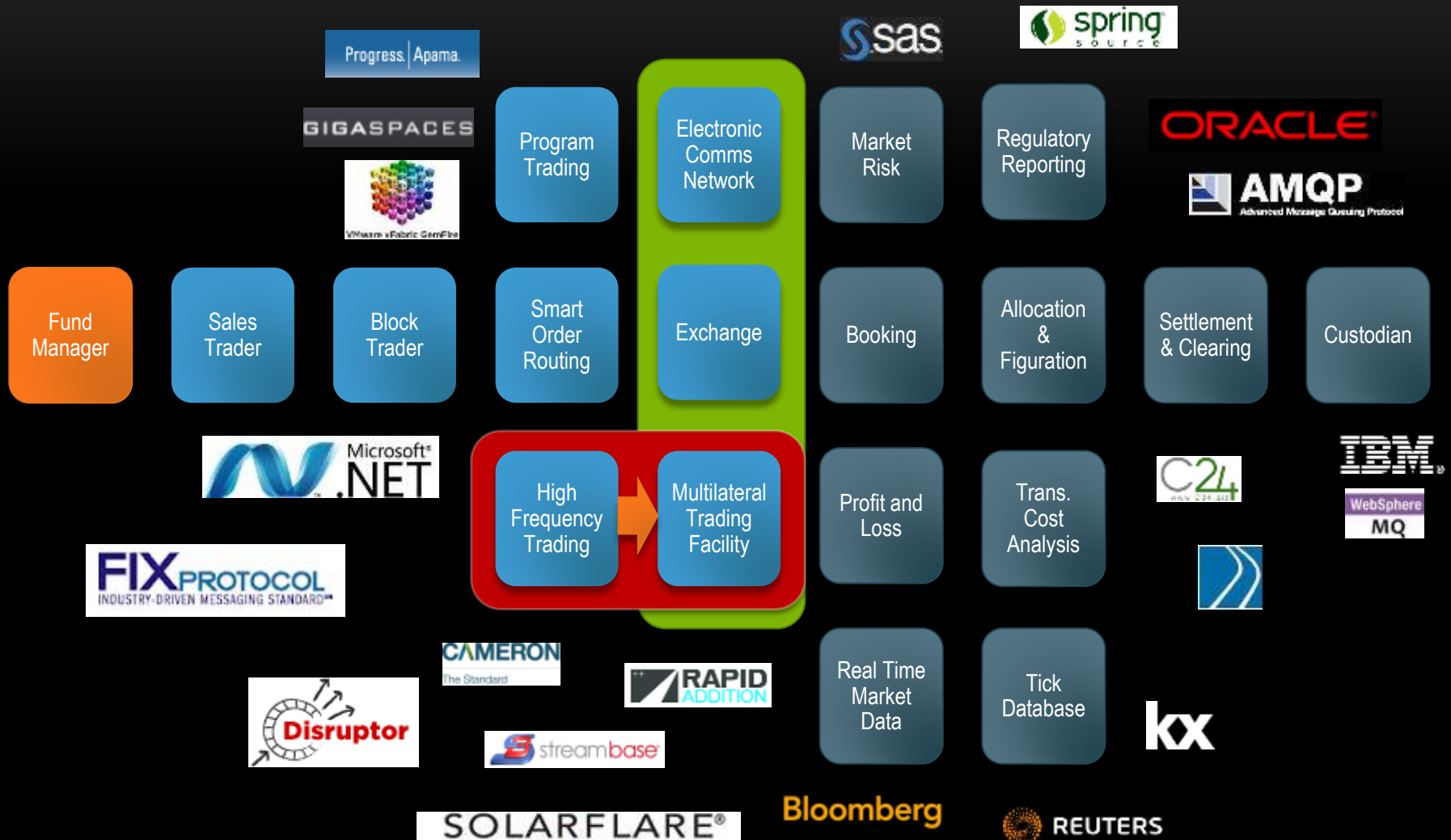
# High Frequency Trading / Market Making



# Different kinds of technology in the life cycle



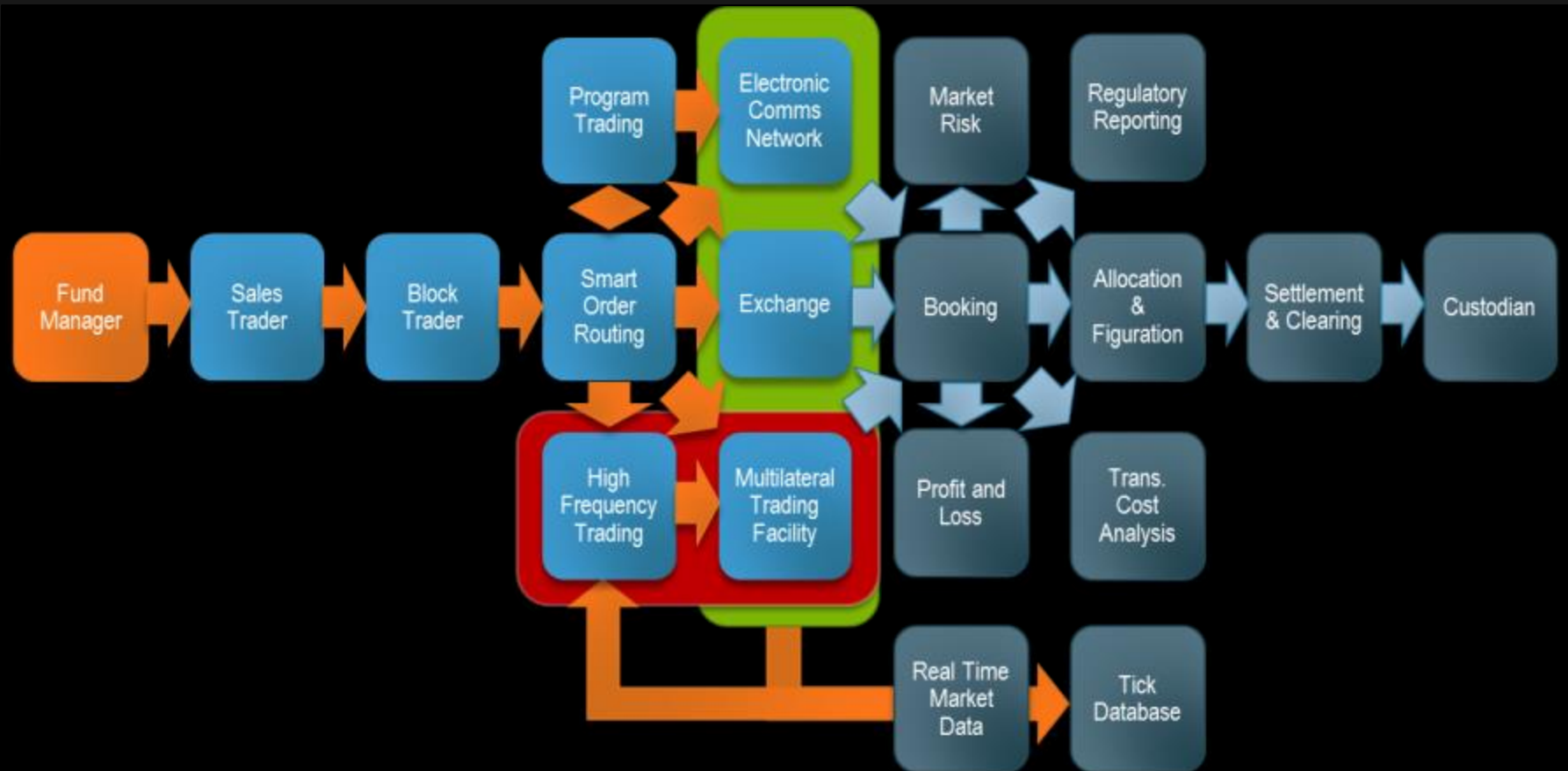
# An unscientific survey...



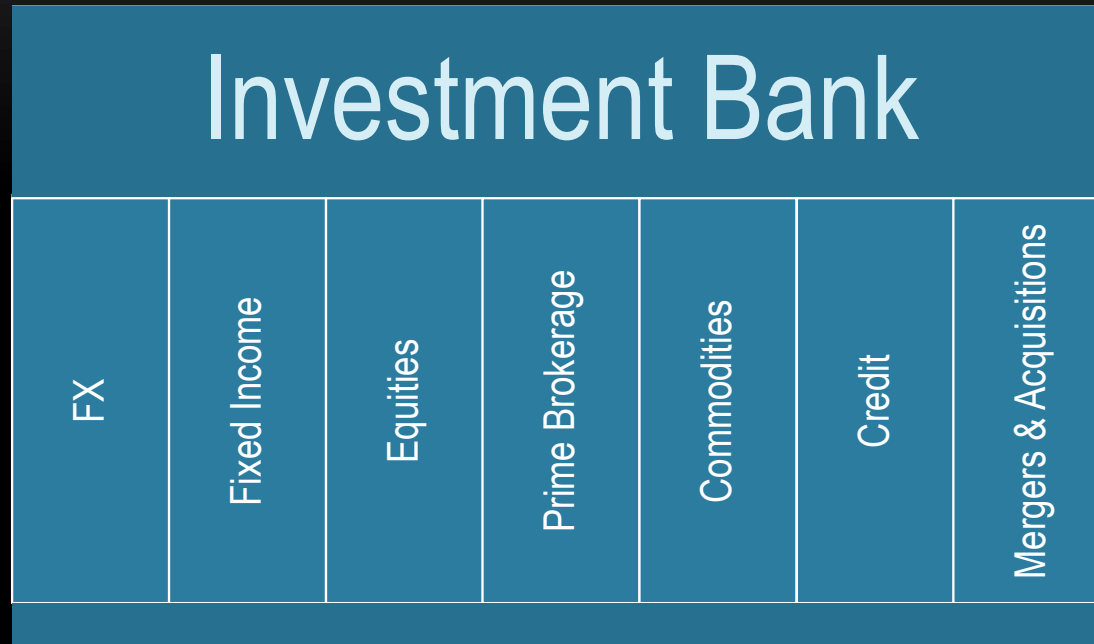
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Taskize

# Investment bank...



Global bank...



Approx  
**\$10 Billion**  
annual technology costs

- Banks are industrialising
- A new era of banking technology
- Robust technical leadership is needed



*Questions?*

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