The End of Moore’s Law

CMOS is loosing steam in several ways. Research needed into exploring ways for compensating for this steam loss.

-          The editorial of May 2014 issue of the CACM [http://cacm.acm.org/magazines/2014/5/174359-moores-law-and-the-sand-heap-paradox/fulltext](https://exchange.umiacs.umd.edu/owa/redir.aspx?C=Tp0fYvCJWEuxsL0fPSJQf9X_m6pJOdFIR0c8hvRcWfoqj6FPgI4rLMcKE7SV2rxFCF9lubj86qA.&URL=http%3a%2f%2fcacm.acm.org%2fmagazines%2f2014%2f5%2f174359-moores-law-and-the-sand-heap-paradox%2ffulltext)

-          The first among list of hot topics for the upcoming Microsoft Faculty Summit 2014  (to which I was invited) [http://research.microsoft.com/en-US/events/fs2014/agenda.aspx](https://exchange.umiacs.umd.edu/owa/redir.aspx?C=Tp0fYvCJWEuxsL0fPSJQf9X_m6pJOdFIR0c8hvRcWfoqj6FPgI4rLMcKE7SV2rxFCF9lubj86qA.&URL=http%3a%2f%2fresearch.microsoft.com%2fen-US%2fevents%2ffs2014%2fagenda.aspx) , and

-          Its co-located event Approaching the end of Moore’s Law: time to reinvent the system stack? per [http://research.microsoft.com/en-us/events/fs2014/ancillaryevents.aspx](https://exchange.umiacs.umd.edu/owa/redir.aspx?C=Tp0fYvCJWEuxsL0fPSJQf9X_m6pJOdFIR0c8hvRcWfoqj6FPgI4rLMcKE7SV2rxFCF9lubj86qA.&URL=http%3a%2f%2fresearch.microsoft.com%2fen-us%2fevents%2ffs2014%2fancillaryevents.aspx)
which all suggest extensive timely interest in research driven by “the end of Moore’s Low”.

The Economist: Cost per transistor, starts increasing after decreasing at an exponential rate for decades.

My favorite: focus on functional limitations.

CMOS technology requires increasing energy for data movement.

NAE recommends to have programmers accommodate CMOS limitations.

They chose not to include some key enabling technologies.

I believe that the future is in combining:

1. enabling technologies (optics, cooling) – man (most?) relevant people not in the room
2. applications – again many relevant people no in the room