

The **Merlin Project** and Important Aspects of Research Issues for Low Cost Computers

1st Workshop on Low Cost Laptops
and Devices in Brazil

Jecel Mattos de Assumpção Jr
June 6, 2008

topics

- OLPC: can there be only one?
- Viewpoints Research: inventing the future
- Merlin: history and overview
- A comparison

Can there be only one?



One Laptop
Per Child

<http://www.laptop.org>

communities

1970s AI

PDP-10

LISP

1970s/80s Unix

VAX / 68K

C

1970s/80s PC

WINTEL

Microsoft BASIC

Standard Platform

communities

ARPAnet

1970s AI

PDP-10

LISP

magazines

1970s/80s PC

Microsoft BASIC

Unet / Internet

1970s/80s Unix

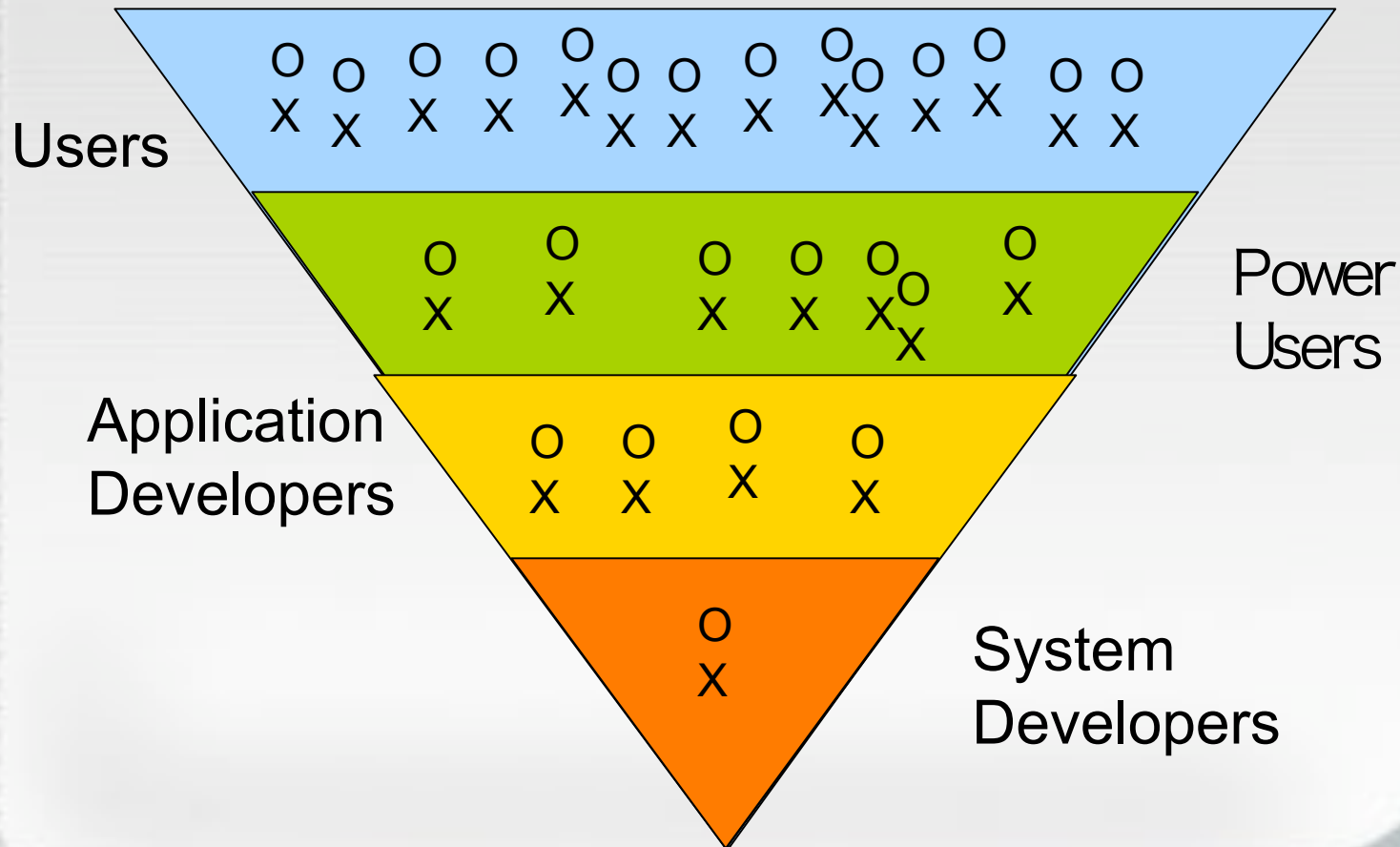
VAX / 68K

C

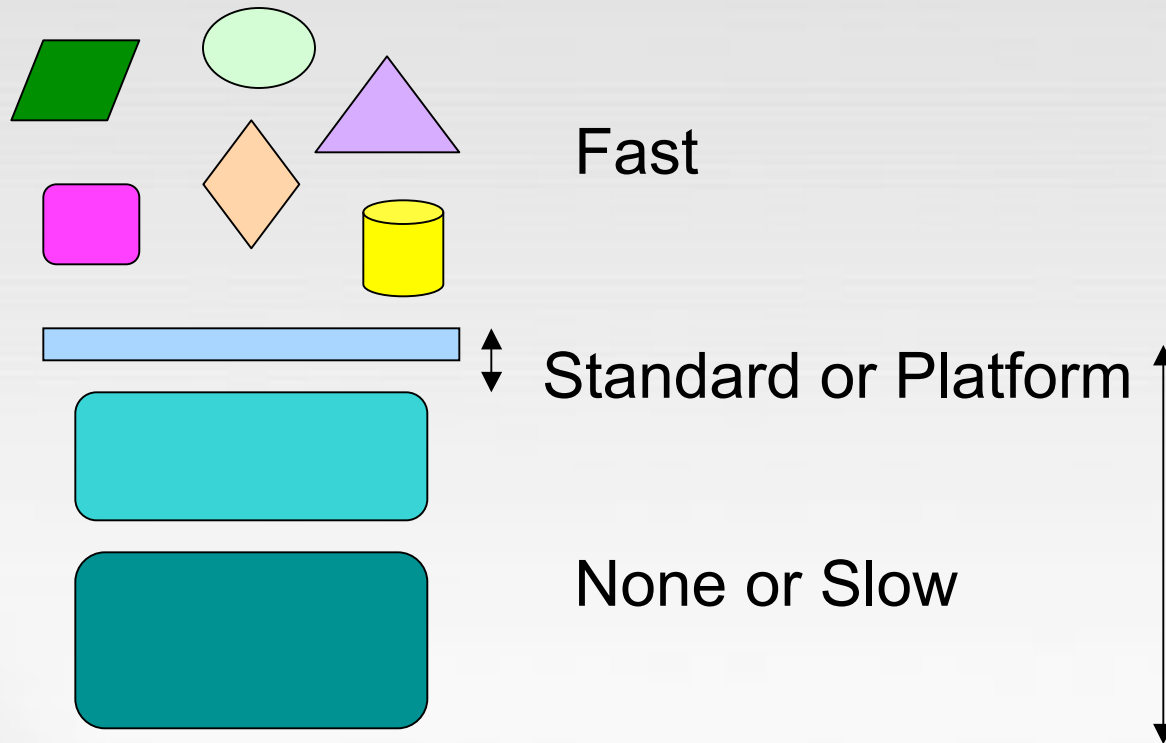
WINTEL

Communication Channel

A Healthy Community



Innovation



Standard Platform

Sugar Labs



Pixel QI

Inventing the future



CS “dream team”

Principal Investigators



Alan Kay (PI)



Ian Plumarta (co-PI)



Kim Rose (co-PI)



Dan Ingalls (co-PI)
Sun Microsystems

Researchers



Dan Amelang



Ted Kaehler



Yoshiki Ohshima



Scott Wallace



Alex Warth



Takashi Yamamiya

Colleagues and Advisors



Jim Clune
UCLA



John Maloney
MIT Media Lab



Andreas Raab
qwaq, inc



Dave Smith
qwaq, inc



David Reed
MIT



Vishal Sikka
SAP



Chuck Thacker
Microsoft

1972

A Personal Computer for Children of All Ages

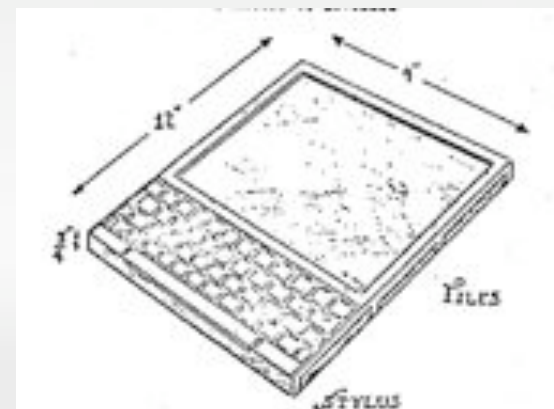
Alan C. Kay
Xerox Palo Alto Research Center

Abstract

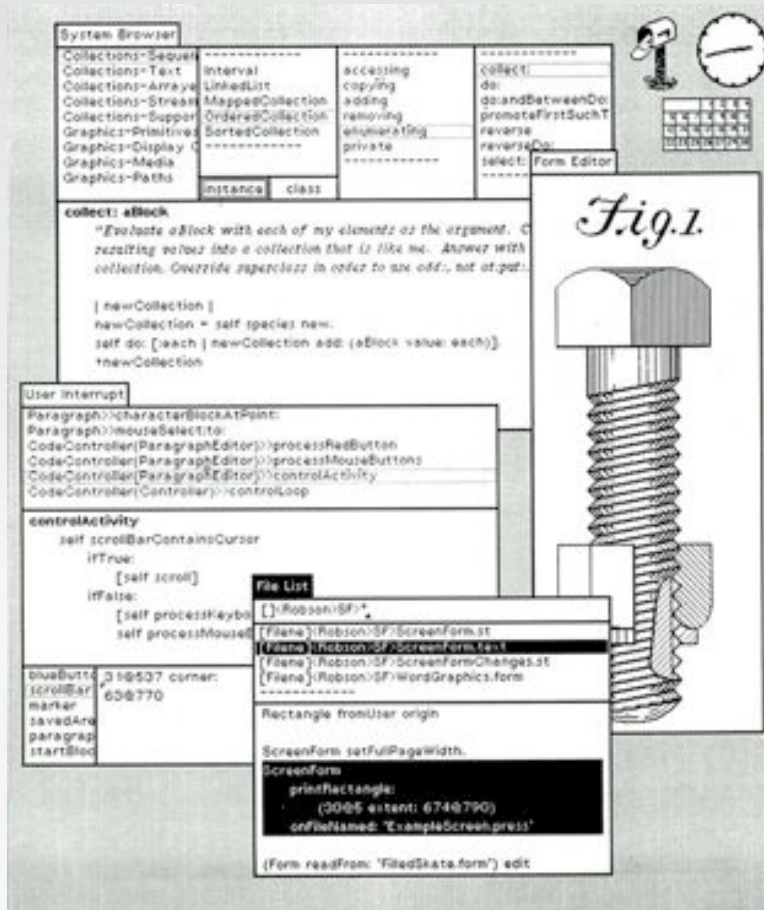
This note speculates about the emergence of personal, portable information manipulators and their effects when used by both children and

teacher? Maybe. But first, it must decide that it is a necessary and desirable goal to do so.

What we would like to do in this brief note is to discuss some aspects of the learning process



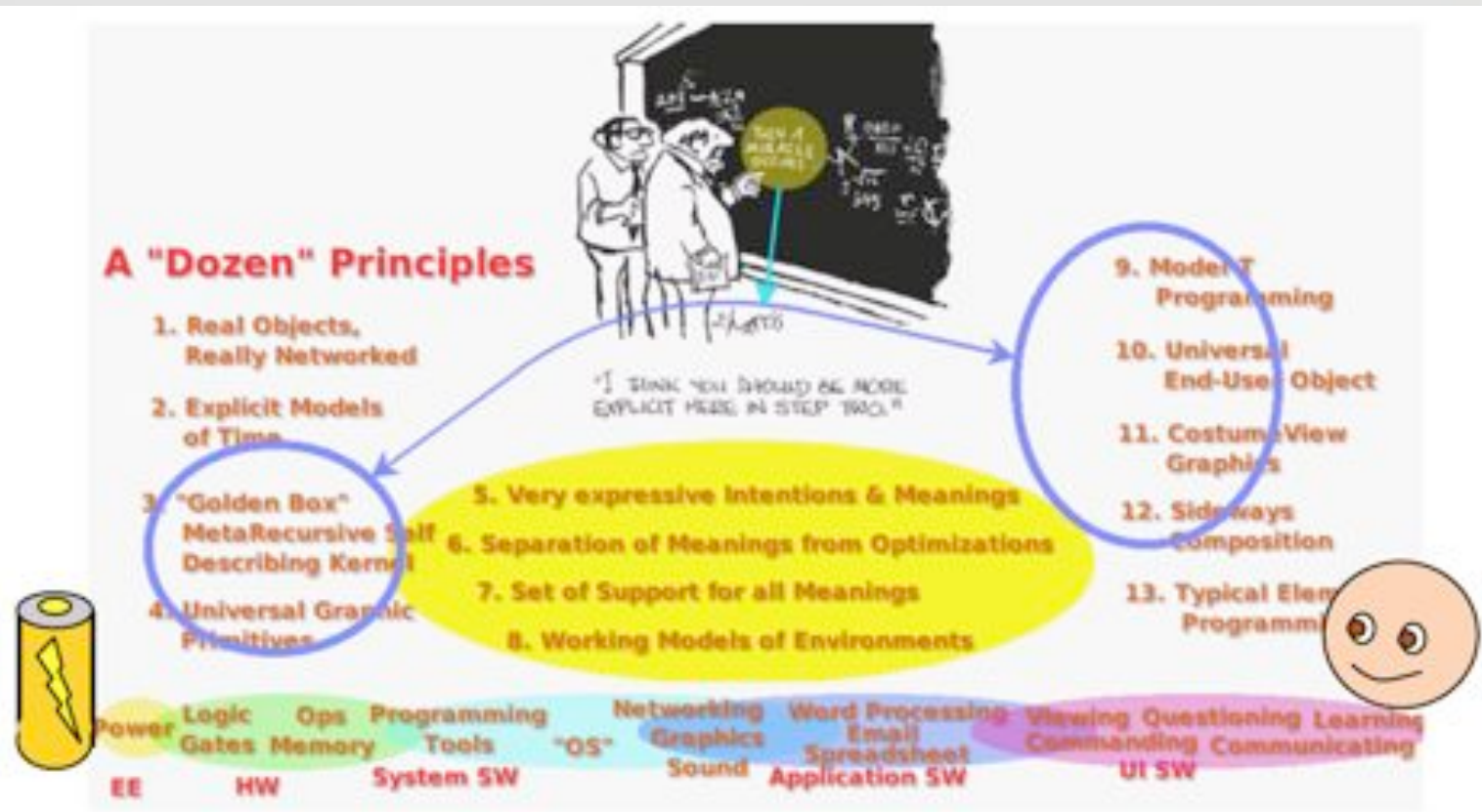
1976



System Size (Lines of Code)

- Windows or Linux plus basic applications = many millions
- Squeak = 200K
- Target = 20K

Plan of Attack



First Year Results

- IS - 1000 LOC
- JavaScript - 170 LOC
- Ometa - 100 LOC
- TCP/IP - 200 LOC
- Graphics - 500 LOC
- Verilog CPU - 100 LOC
- A number of other languages
- Several GUIs



Merlin - history



1983: Pegasus
(Logo Machine)

<http://www.merlintec.com>



Merlin - history



1986:
Merlin 2



Merlin - history



1993:
Merlin 4



Merlin - history

2003:
proto
Merlin 6





Merlin - overview



Neo
Smalltalk

Plurion:

RISC42

RISC42

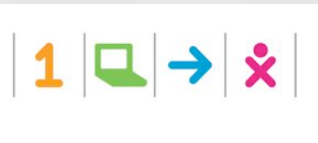
RISC42

RISC42

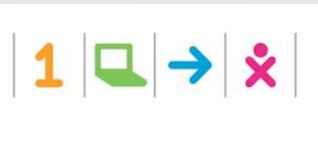


External memories

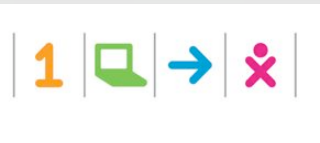
comparison

			
funding	\$20M initial Tiny royalty	Donors \$5M NSF	\$70K self financed
start	2005	2001 (1970)	1999 (1983)
base	PC, Linux, Sugar	COLA	Plurion, Neo Smalltalk

comparison

			
content	volunteers	?	Pay per use
Open source	mostly	yes	yes
testing	Since March 2007	Since 2005	In a few months

comparison

			
security	Bitfrost	Islands	Object extensions
sharing	Telepathy / Tubes	Tea Time	Viewpoint sync
Multi cores	Linux SMP?	HydraVM	groups

Conclusion

The children can't wait... to have a community we need a standard platform right now pieced together from what exists.

Sugar can be that platform.

But this approach won't take us very far into the future... we need to develop stuff we can control.