

Forschungsdatenmanagement

FDM-Workshop am 19./20. April 2018, MPI für Psychiatrie

Michael Franke, MPDL



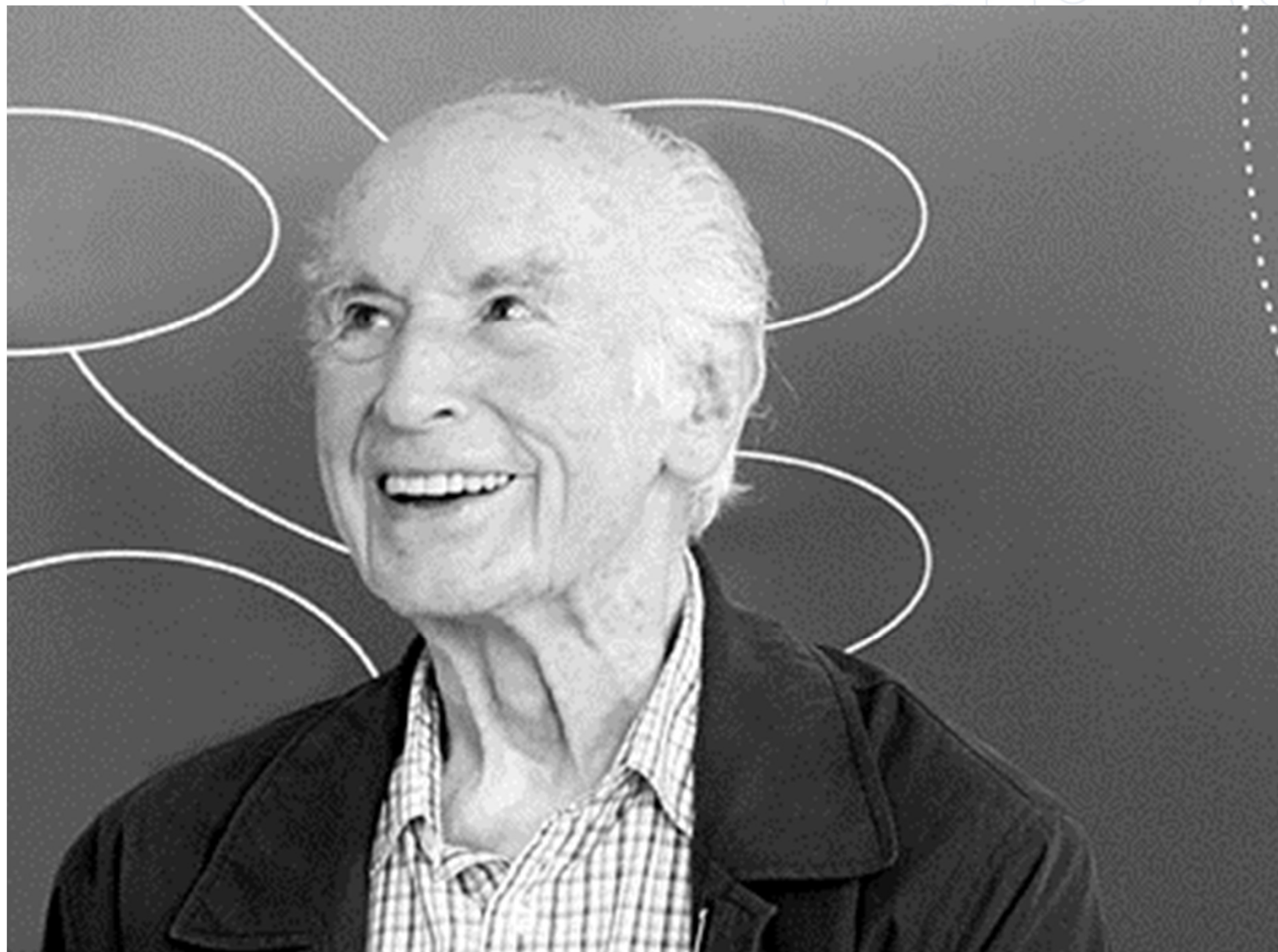
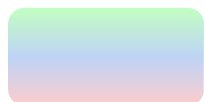
MAX PLANCK
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Bicycle Day

Albert Hofmann

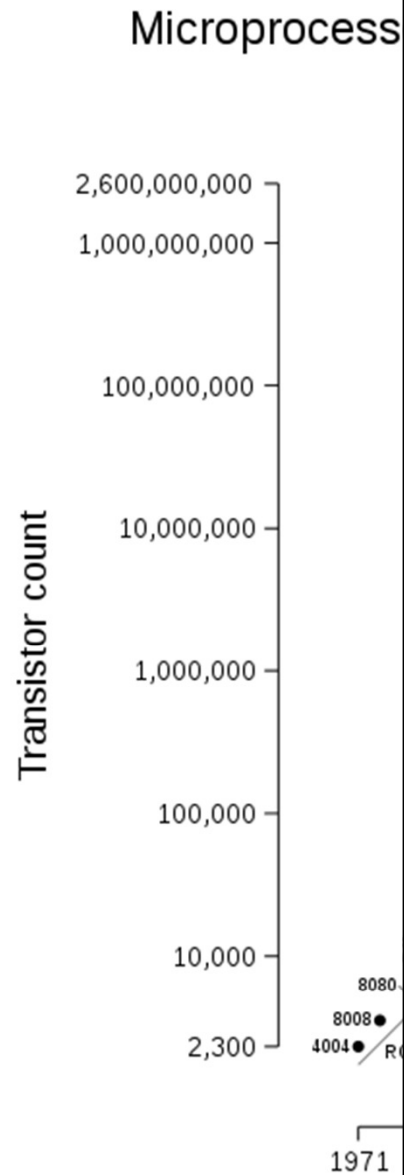
19. April 1943

Lysergsäurediethylamid



Moore's Law

Gordon Moore
19. April 1965
„Cramming more components
onto integrated circuits“



The experts look ahead

Cramming more components onto integrated circuits

With unit cost falling as the number of components per circuit rises, by 1975 economics may dictate squeezing as many as 65,000 components on a single silicon chip

By Gordon E. Moore

Director, Research and Development Laboratories, Fairchild Semiconductor division of Fairchild Camera and Instrument Corp.

The future of integrated electronics is the future of electronics itself. The advantages of integration will bring about a proliferation of electronics, pushing this science into many new areas.

Integrated circuits will lead to such wonders as home computers — or at least terminals connected to a central computer — automatic controls for automobiles, and personal portable communications equipment. The electronic wrist-watch needs only a display to be feasible today.

But the biggest potential lies in the production of large systems. In telephone communications, integrated circuits in digital filters will separate channels on multiplex equipment. Integrated circuits will also switch telephone circuits and perform data processing.

Computers will be more powerful, and will be organized in completely different ways. For example, memories built of integrated electronics may be distributed throughout the

machine instead of being concentrated in a central unit. In addition, the improved reliability made possible by integrated circuits will allow the construction of larger processing units. Machines similar to those in existence today will be built at lower costs and with faster turn-around.

Present and future

By integrated electronics, I mean all the various technologies which are referred to as microelectronics today as well as any additional ones that result in electronics functions supplied to the user as irreducible units. These technologies were first investigated in the late 1950's. The object was to miniaturize electronics equipment to include increasingly complex electronic functions in limited space with minimum weight. Several approaches evolved, including microassembly techniques for individual components, thin-film structures and semiconductor integrated circuits.

Each approach evolved rapidly and converged so that each borrowed techniques from another. Many researchers believe the way of the future to be a combination of the various approaches.

The advocates of semiconductor integrated circuitry are already using the improved characteristics of thin-film resistors by applying such films directly to an active semiconductor substrate. Those advocating a technology based upon films are developing sophisticated techniques for the attachment of active semiconductor devices to the passive film arrays.

Both approaches have worked well and are being used in equipment today.

The author

Dr. Gordon E. Moore is one of the new breed of electronic engineers, schooled in the physical sciences rather than in electronics. He earned a B.S. degree in chemistry from the University of California and a Ph.D. degree in physical chemistry from the California Institute of Technology. He was one of the founders of Fairchild Semiconductor and has been director of the research and development laboratories since 1959.

Electronics, Volume 38, Number 8, April 19, 1965

Neue Spielregeln

Regeln zur Sicherung guter wissenschaftlicher Praxis (2000)

Berliner Erklärung (2003)

Grundsätze zum Umgang mit Forschungsdaten (2010)

Science Europe Roadmap (2013)

4. Sicherung und
Primärdaten als

Sicherung und Zugänglichkeit In Übereinstimmung mit wichtigen internationalen Organisationen auf dem Gebiet der Förderung und Durchführung von Forschungsaufgaben⁽¹⁾ unterstützt die Allianz die langfristige Sicherung und den grundsätzlich offenen Zugang zu Daten aus öffentlicher Förderung Forschung.

Research data is understood here as a broad concept embracing a variety of factual material, such as numerical data, text, video and audio materials. Research data should be permanently, publicly and freely available for re-use. However there may be legitimate reasons (including discipline-specific ones or privacy related ones) for delayed or restricted access, which call for a balanced approach towards openness to research data.

of pictorial and graphical materials a

c) Regeln für die Veröffentlichung von Ergebnissen
– prinzipielle Veröffentlichung der Forschungsergebnisse (Sichtbarkeit der Forschung),


Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities
Die Berliner Erklärung über den offenen Zugang zu wissenschaftlichem Wissen vom 22. Oktober 2003 wurde in englischer Sprache verfasst. Sie ist einer der Meilensteine der Open Access-Bewegung. Der Wortlaut der englischen Version ist maßgebend.
Preface

„Grundsätze zum Umgang mit Forschungsdaten“
Die „Grundsätze zum Umgang mit Forschungsdaten“ sind ein Ergebnis im Rahmen der Allianz Schwerpunktinitiative „Digitale Information“, Handlungsfeld 4 „Forschungsprimärdaten“.
Präambel Qualitätsgesicherte Forschungsdaten bilden einen Grundpfeiler wissenschaftlicher Erkenntnis und können unabhängig von ihrem ursprünglichen Erhebungszweck vielfach Grundlage weiterer Forschung sein. Dies gilt namentlich für die Aggregation von Daten aus unterschiedlichen Quellen zur gemeinsamen Nutzung. Die nachhaltige Sicherung und Bereitstellung von Forschungsdaten dient daher nicht nur der Prüfung früherer Ergebnisse, sondern in hohem Maße auch der Erzielung künftiger Ergebnisse. Sie bildet eine strategische Aufgabe, zu der Wissenschaft, Politik und andere Teile der Gesellschaft gemeinsam beitragen müssen. Mit dem Ziel, die Qualität, Produktivität und Wettbewerbsfähigkeit der Wissenschaft zu fördern, verabschiedet die Allianz der deutschen Wissenschaftsorganisationen daher folgende Grundsätze für ein koordiniertes weiteres Vorgehen.
Sicherung und Zugänglichkeit In Übereinstimmung mit wichtigen internationalen Organisationen auf dem Gebiet der Förderung und Durchführung von Forschungsaufgaben⁽¹⁾ unterstützt die Allianz die langfristige Sicherung und den grundsätzlich offenen Zugang zu Daten aus öffentlicher Förderung Forschung.

and Weise der Datenerhebung, des Umfangs und praktischen Brauchbarkeit der Daten entwickelt werden. Nutzungsszenarien der Daten in dem konkreten Forschungsgebiet zu entwickeln, dass auch eine interdisziplinäre Nutzung ermöglicht.

Entwicklung von Infrastrukturen Ein nachhaltiges Forschungsdatennetzwerk erfordert technische und organisatorische Anforderungen. Diese Anforderungen sind von den Wissenschaftlerinnen und Wissenschaftlern mit Informationsspezialisten definiert werden. Infrastrukturen sind gemäß diesen Anforderungen zu entwickeln. Der Beginn an in internationale und interdisziplinäre Netzwerke internationaler Zusammenarbeit.

¹ „The EUROHORCS and ESF Vision on a Globally Competitive ERA and their Roadmap“, Policy Briefing 33, June 2008, <http://www.esf.org/publications/policy-briefings.html>, ² „Research Data from Public Funding“, OECD 2007.
² DFG Denkschrift: Sicherung Guter Wissenschaftlicher Praxis, DFG 1998; <http://www.dfg.de>



Neue Spielregeln

Neue Richtlinien von Forschungsförderern

Neue Richtlinien von wiss. Zeitschriften

Neue gesetzliche Regelungen?



Type of ERC grant	Work programme under which the proposal was selected	Applicable rules related to Open Access and Research Data
Frontier Research Grant (Starting Grant / Consolidator Grant / Advanced Grant / Synergy Grant)	2007 – 2011 (FP7)	No formal obligations
	2012 – 2013 (FP7)	Special Clause 39 ERC on Open Access

Grant agreement /
References to research Agreement (article Horizon 2020).
Regarding t must:

Proof-of-Concept Grant
Coordination and Support Action

Zugänglichkeit:

PUBLICATION POLICIES

Data and Materials Availability after Publication

After publication, all data and materials necessary to understand, assess, and extend the conclusions of the manuscript must be available to any reader of a *Science* Journal. After publication, all reasonable requests for data, code, or materials must be fulfilled. Any restrictions on the availability of data, code, or materials, including fees and restrictions on original data obtained from other sources must be disclosed to the editors as must any Material Transfer Agreements (MTAs) pertaining to data or materials used or produced in this research, that place constraints on providing these data, code, or materials. Patents (whether applications or awards to the authors or home institutions) related to the work should also be declared.

Fossils or other rare specimens must be deposited in a public museum or repository and available for research.

Unreasonable restrictions on data, code, or material availability may preclude publication. Problems in obtaining access to published data are taken seriously by the *Science* Journals and can be reported at science_data@aaas.org.

PLOS ONE

Data Availability

The following policy applies to all PLOS journals, unless otherwise noted.

PLOS journals require authors to make all data underlying the findings described in their manuscript fully available without restriction, with rare exception.

When submitting a manuscript online, authors must provide a *Data Availability Statement* describing compliance with PLOS's policy. If the article is accepted for publication, the data availability statement will be published as part of the final article.

Refusal to share data and related metadata and methods in accordance with this policy will be grounds for rejection. PLOS journal editors encourage researchers to contact them if they encounter difficulties in obtaining data from articles published in PLOS journals. If restrictions on access to data come to light after publication, we reserve the right to post a correction, to contact the authors' institutions and funders, or in extreme cases to retract the publication.

Methods acceptable to PLOS journals with respect to data sharing are listed below, accompanied by guidance for authors as to what must be indicated in their data availability statement and how to follow *best practices in reporting*. If authors did not collect data themselves but used another source, this source must be credited as appropriate. Authors who have questions or difficulties with the policy, or readers who have difficulty accessing data, are encouraged to contact the journal office (plosone@plos.org). If you have broader questions about the PLOS data availability policy, contact data@plos.org.

The data policy was implemented on March 3, 2014. Any paper submitted before that date will not have a data availability statement. However for all manuscripts submitted or published before this date, data must be available upon reasonable request.

...wissenschaftlicher
Dritter, insbesondere Datenschutz, Urheberrecht) zur Nachnutzung
e hierzu auch weitere Angaben im Leitfaden zu dieser Förderrichtlinie).



Was also gehört zum Forschungsdatenmanagement?

Wohin?

- Backup
- Archivierung
- Repository

Was?

- Datenformate
- Metadaten(standards)
- DMPs

Womit?

- Forschungssoftware

Wann?

- Forschungsdaten-Workflows

Wer?

- Berufsbilder
- Ausbildung

Warum nicht?

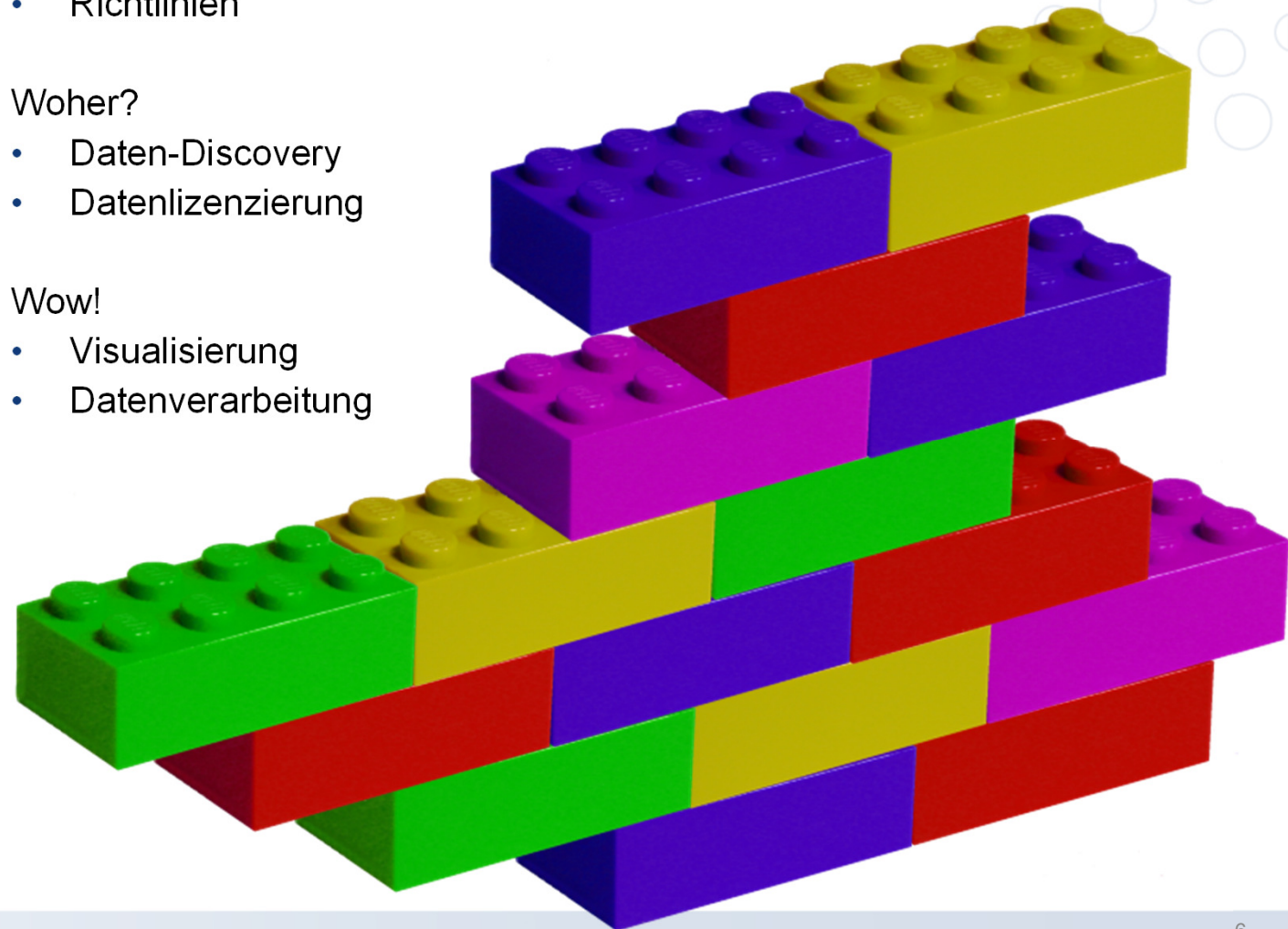
- Rechtliche Fragestellungen
- Richtlinien

Woher?

- Daten-Discovery
- Datenlizenzierung

Wow!

- Visualisierung
- Datenverarbeitung



Mögliche Ziele

Lösungsansätze generieren

Versorgungs- und Wissenslücken aufzeigen

Entwicklungsrichtungen benennen

Möglichkeiten für neue Services identifizieren

Netzwerken, netzwerken, netzwerken!



~~BMW Service~~
~~FNT Service~~
DOI Service
DMP Serv



Viel Spaß

