Mapping Affinities:
Democratizing Data Visualization

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<tbody>
<tr>
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MAPPING AFFINITIES

DARIO RODIGHIERO

MētisPresses
Mapping Affinities
MAPPING AFFINITIES
Democratizing Data Visualization

Dario Rodighiero
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# CONTENTS

<table>
<thead>
<tr>
<th>Page</th>
<th>Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>Preface</td>
</tr>
<tr>
<td>13</td>
<td>Introduction</td>
</tr>
<tr>
<td>15</td>
<td>Metrics of Science</td>
</tr>
<tr>
<td>23</td>
<td>Visualizing Affinities</td>
</tr>
<tr>
<td>43</td>
<td>The Case Study of ENAC School</td>
</tr>
<tr>
<td>47</td>
<td>Participatory Design</td>
</tr>
<tr>
<td>67</td>
<td>Technical and Moral Constraints</td>
</tr>
<tr>
<td>75</td>
<td>Visual Principles</td>
</tr>
<tr>
<td>103</td>
<td>Introducing the Reader</td>
</tr>
<tr>
<td>111</td>
<td>Validation of the Visual Method</td>
</tr>
<tr>
<td>121</td>
<td>Interaction in Public Spaces</td>
</tr>
<tr>
<td>131</td>
<td>Conclusions</td>
</tr>
<tr>
<td>141</td>
<td>Laboratory Acronyms</td>
</tr>
<tr>
<td>145</td>
<td>References</td>
</tr>
<tr>
<td>155</td>
<td>Acknowledgements</td>
</tr>
<tr>
<td>159</td>
<td>Credits</td>
</tr>
</tbody>
</table>
We never look at just one thing; we are always looking at the relation between things and ourselves.

— JOHN BERGER, 1972

I disegni non sono decorazioni, sono parole.

— ENZO MARI, 2020
A case study lies at the heart of *Mapping Affinities* by Dario Rodighiero: that of a highly refined project that sought to map the research underway within EPFL, the Federal Institute of Technology in Lausanne, in Switzerland.

Yet the case study in question is much more than a mere case study. It raises profound questions regarding research, organizational structures, social dynamics, knowledge networks, the pathways followed by researcher careers, and university governance. In doing so, it opens up a broad set of perspectives pointed to in the book’s subtitle: *Democratizing Data Visualization*. When it comes to data, Rodighiero demonstrates that the word “democracy” implies a multifaceted approach to mapping and visualization: an approach built upon scrutinizing data sets with a critical and creative eye; understanding visualization as a complex, interactive form of storytelling; and attending to the differing audiences and modes of engagement that a given data visualization strives to accommodate. The result is a compelling research account of community mapping less as a *product* than as a *process* whose successes and failures have to be examined as a function of their ability to engage the community in question and even audiences beyond the confines of that community.

The legacy scientometric and bibliometric systems that have come into common usage within universities over the course of the past few decades (in the company of Science Citation Indices, h-indices, and Impact Factor calculations) are reasonably good at describing a thin slice of the research pie: the published record, patterns of citation and authorship, the allocation of grants, and the composition of research teams. Like trusty bloodhounds, they follow the traces of that paper (and, later, pixel) trail that, in their 1979 seminal study, Latour and Woolgar identified as the fulcrum of laboratory life.

*Mapping Affinities* addresses the larger, more complex *rest of the pie*. Scientometrics and bibliometrics tell us little as regards the shape or texture of a research community, its network of connections to other intramural or extramural research groups, or the balance between the roles played by individual researchers and the units to which they belong. Moreover, because of their narrow concern with publications, they tend to be retrospective in nature and
to neglect unpublished and informal modes of research interaction. How might research or collaborations be described not “after that fact” but as emergent or potential formations (i.e. with an eye towards predictive and/or recommended outcomes)? And how might one excavate beneath the surfaces of authorial order and citation networks into the stratified layers of knowledge forms and the communities that animate them? This is where Dario Rodighiero’s focus on networks based upon affinity (rather than influence, impact, or formal collaboration) transports the book’s reader towards a richer understanding of how a research community can be described, represented, and transformed into an object of experience that is performed by that very community.

The ultimate moral of the story that unfolds in *Mapping Affinities* involves the preponderant role performed by design, which is to say designers, in the successful mapping and visualization of complex communities like universities. Designers are challenged on multiple fronts. They need to further nourish and enhance conventional institutional data sets in order to render them sufficiently rich and complex. They then need to shape these data into experiences that are meaningful to multiple audiences: from a university’s leadership to its researchers and students to the surrounding community. And in order to achieve these goals, they must deliver these experiences in multiple modalities, from the online to the on-site, spatialized, and embodied. Data democratization is ultimately achieved by design, not thanks only to the transparency with which data is devised, analyzed, and disseminated.

—JEFFREY SCHNAPP

Founder and faculty director of metaLAB(at)Harvard; Carl A. Pescosolido Professor of Romance Languages and Literatures and of Comparative Literature; Faculty co-director of Berkman Center for Internet and Society; Affiliate of the Department of Architecture at the GSD
Today, organizations are more than ever complex systems. They are so large, ramified, and intertwined that their organic structure seems like a tangle of activities. Day by day organization members contribute to keeping these structures alive with their actions, behaviors, and thoughts. Organizations rely on these daily practices.

Sociology aims to untangle the network of daily practices through the analysis of the digital traces that members leave on the cloud by using desktop computers, smartphones, Wi-Fi networks, identity cards, and online services. The challenge is to recompose structures and behaviors using the data that its members left behind, in various forms and places.

Understanding from daily activities how an organization fluctuates deeply interests the management. The way in which employees work is fundamental to making decisions and planning the future. In particular, managers are interested in having a global perspective to optimize the performance of their employees as much as possible.

The concept of performance deals with the challenge of obtaining the very best from the organization, and management often uses indicators to measure their employees’ performance. Today, however, two interesting things happen: one is that indicators are moving from tabular to graphical form, the other being that the same indicators are at the disposal of everybody as a form of transparency and self-examination.

Nowadays, performance not only interests corporations but also universities. In academia, scholars are often assessed through their publications using the $h$-index or the impact factor. Directors use such metrics to recruit scholars and, in turn, the same scholars try to improve these metrics to be positively evaluated. This bidirectional use clearly shows that academia adheres to performance-based logic.

Current academic policies do not usually take into account a dimension that plays a critical role in scholarly dynamics, the affinity between scholars.

This book focuses on the concept of affinity and the ways to visually represent it. Affinities are diversified and take many forms: from common interests to committee memberships, from teaching activities to publication co-authoring. Affinities are also multiple as scholars
share different kinds of them at the same time, reinforcing their overall ties.

Affinities can be classified as actual and potential. A certain number of potential affinities indicates a predictable tie between scholars; these affinities might be representative for common interests, interdisciplinarity, intellectual culture, professional career, or scientific journals, conferences, and committees. Potential affinities become actual ones when a collaboration takes place; it may be the case of co-authoring a paper or supervising the same doctoral candidate. As a consequence, affinities offer two different dimensions: one is solid and composed of ongoing collaborations, the other is projected towards the possible opportunities to explore the academic environment.

The metric of affinities is crucial for academic organizations. Translating affinities into a visual representation draws a space where actual and potential dimensions can be combined. Contrary to the other metrics that reinforce the ranking between individuals, the logic of affinities is a tool to explore the present for future planning. The attempt is to represent the academic dynamics to foster new synergies. With respect to the logic of governance, planning these synergies is in the interest of both managers and employees to enable top-down as well as bottom-up initiatives.

The metric of affinities has to be, therefore, at the disposal of the whole collective to visually lead individuals in personal choices.

This book is the result of five years working at the École Polytechnique Fédérale de Lausanne (EPFL), during which the problem of mapping affinities was addressed through a design approach. This problem was tackled by visual means, which represent the only solution to manage the enormous mass of data that humans are increasingly producing. The innovation of this work does not stay in the problem itself but rather in the reconciliation of humanities and technology through a new European Bauhaus.
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