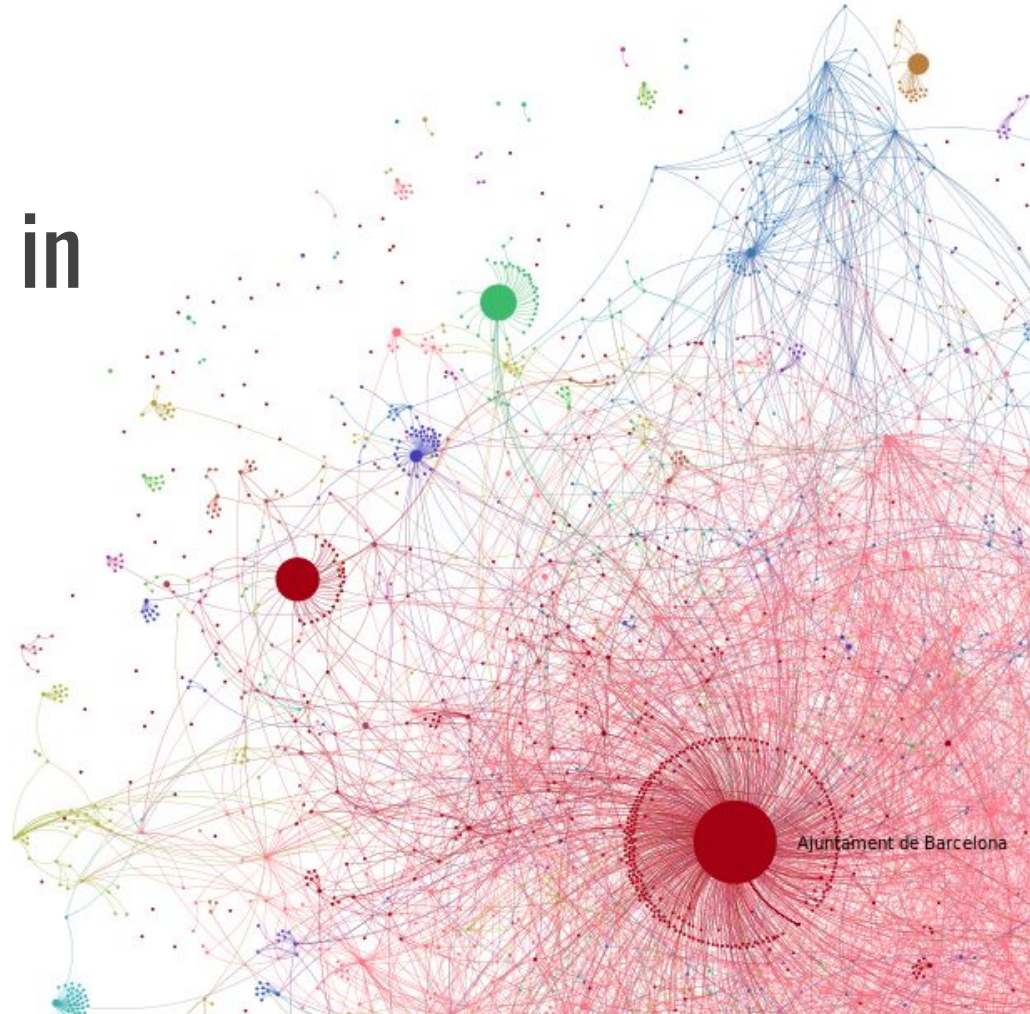# Call For Democracy: The Impact of Rankings in Online Petition Signing

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Ajuntament de Barcelona

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Motivation: the platform democracy

Emergence of platforms for democratic processes which engage a large number of citizens in politics, e.g.,

- Debates
- Petitions
- Crowdlaw
- Participatory budgeting
- Accountability

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The need to understand

Research on data from online petition platforms has covered institutions from many different countries, e.g., the United Kingdom (Hale et al, 2013; Wright 2012), Germany (Linder et al, 2011; Jungherr et al, 2012), or the United States (Dumas et al 2015, Margetts et al 205, Yasseri et al, 2017).

In Spain, from 2015 onwards, there has been a trend towards the implementation of civic technologies in local city councils with dozens of thousands, however, there is not yet an exhaustive analysis of their performance.

The need to understand how petition platforms work is essential to avoid unrealistic expectations that lead petitioners to be upset at the results
(Wright, 2012)

Related work: growth of online petitions

UK government website

The number of signatures on the first day was the most significant factor in explaining their final number of signatures (Hale et al, 2013).

The effect of setting a ranking of trending petitions on the front page was weak for the complete population of users but strong for a specific group of users (Hale et al, 2018).

> *These users, so-called 'aimless petitioners', usually accessed the platform through the front page rather than starting with a specific petition. They were numerous enough and affected strongly enough that the social information on trending petitions significantly affected petition signing on the site as a whole.*

Related work: growth of online petitions

White House website
Petitions are more likely to fail when the number of signatures is lower on the second day than on the first day (Chan et al, 2017).

UK government and the US White House websites
Multiplicative process model based on (Wu et al, 2007): petitions grew very rapid in their first two days but the outreach factor decayed very quickly on average (Yasseri et al 2017).

openPetition
Petitions with many signatures are less likely to exhibit bursty signing dynamics (Böttcher et al, 2017).

Related work: competition and spillover effect

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Popular petitions draw attention to the platform which benefits the less popular ones

German Petitions coinciding in time with a successful petition were able to obtain almost twice as many signatures per day (Jungherr etl, 2012; Schmidt et al, 2014).

Although **Change.org** petitions from the same topics competed for signatures, specialized petitions were not successful in gathering signatures from concentrated populations of users (TeBlunthuis et al, 2017).

Research gap

To the best of our knowledge, the only comparative analysis is the assessment of the multiplicative process model of petition signing in the UK government and the US White House websites (Yasseri et al, 2017).

The study made a greater effort to develop and validate a framework that explains petition growth in both platforms than to characterize the impact of the different features of each website.

The recent scenario of Decide Madrid and Decidim Barcelona (PAM period) is of great interest since they have relevant similarities and differences

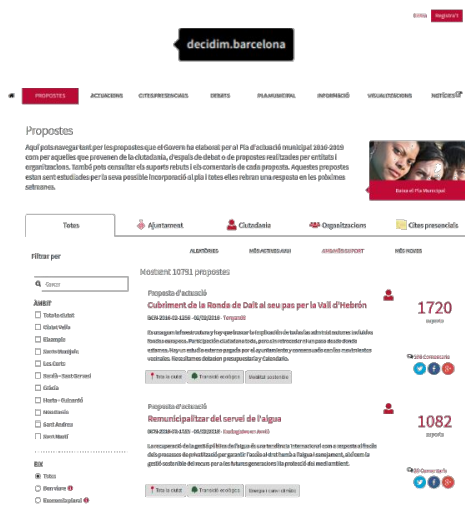# Settings of Decide Madrid and Decidim Barcelona

Table 1. Main features of *Decide Madrid* and *Decidim Barcelona* which illustrate the two different settings of the same technology for direct democracy.

Platform	Decide Madrid	Decidim Barcelona
Participatory Process	Citizen Proposals	Municipal Action Program (PAM)
URL	https://decide.madrid.es/proposals/	https://www.decidim.barcelona/processes/pam/
Availability	September 15, 2015 – to present	February 1, 2016 – April 10, 2016
Number of petitions	More than 20,000 (still active)	10,860
Objective of petitions	To gather 27,064 signatures (1% of the population of Madrid over 16 years old)	To gather as many signatures as possible to express the support of the corresponding proposal for the Municipal Action Program
Petition lifetime	One year	From publication date to 2016/04/10
Other relevant processes occurring in the platform	2015 Advertising campaign 2016 Plaza España 2016 Open Budgets 2017 La Gran Votación 2017 Open Budgets 2017 Once Plazas	None (in this period)
Default sorting criteria of petitions in the front page	Hot → Hot (+top 3) → Hot (+top 2) → Hot	Hot → Random
Alternative sorting criteria of petitions in the front page	Most Popular Most Recent	Hot (once Random was set as default) Most Popular Most Recent

Front pages of Decide Madrid and Decidim Barcelona

(a)   (b)

Fig. 1. Screenshots, taken in 2016, of the front page of online petitions in (a) *Decide Madrid*, and (b) *Decidim Barcelona*. In *Decide Madrid*, petitions are sorted by default with an adapted version of Hot Score from Reddit, i.e., recent petitions which are rapidly gathering signatures. However, users are able to explore both rankings of Most Popular and Most Recent petitions. The screenshot also shows the yellow banner featuring the two most popular petitions at that time. In *Decidim Barcelona*, petitions are presented randomly by default. However, the rankings of Hot, Most Popular, and Most Recent petitions are also available.

Research questions

How do

- hosting simultaneous participatory processes,
- the sorting criteria of petitions on the front page
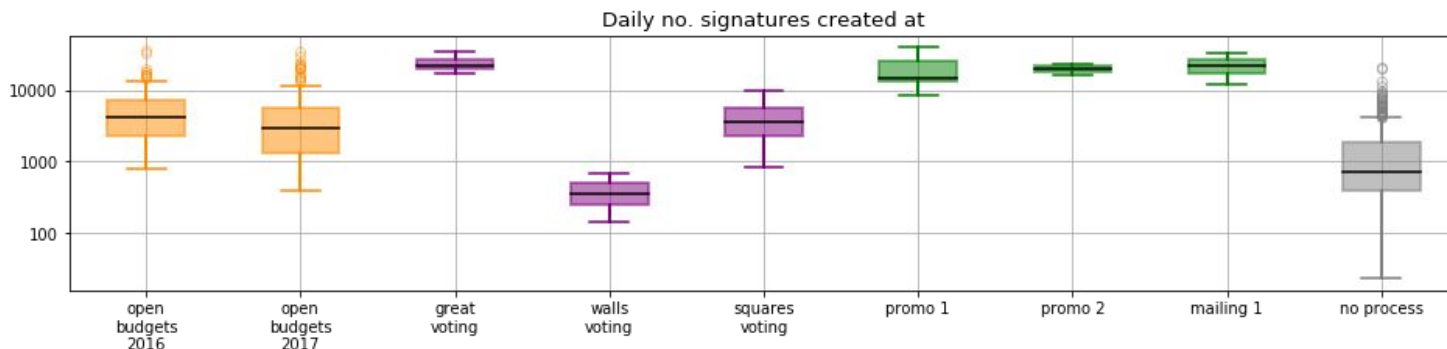
affect petition signing?
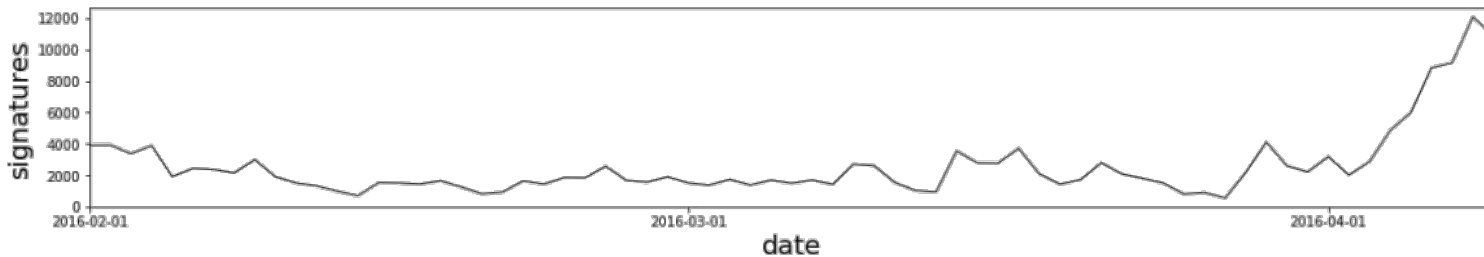
Distribution of petitions and signatures in Decide Madrid

Advertising campaigns

Participatory processes

Participatory budgets

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Distribution of petitions and signatures in Decide Madrid

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Daily no. signatures created at
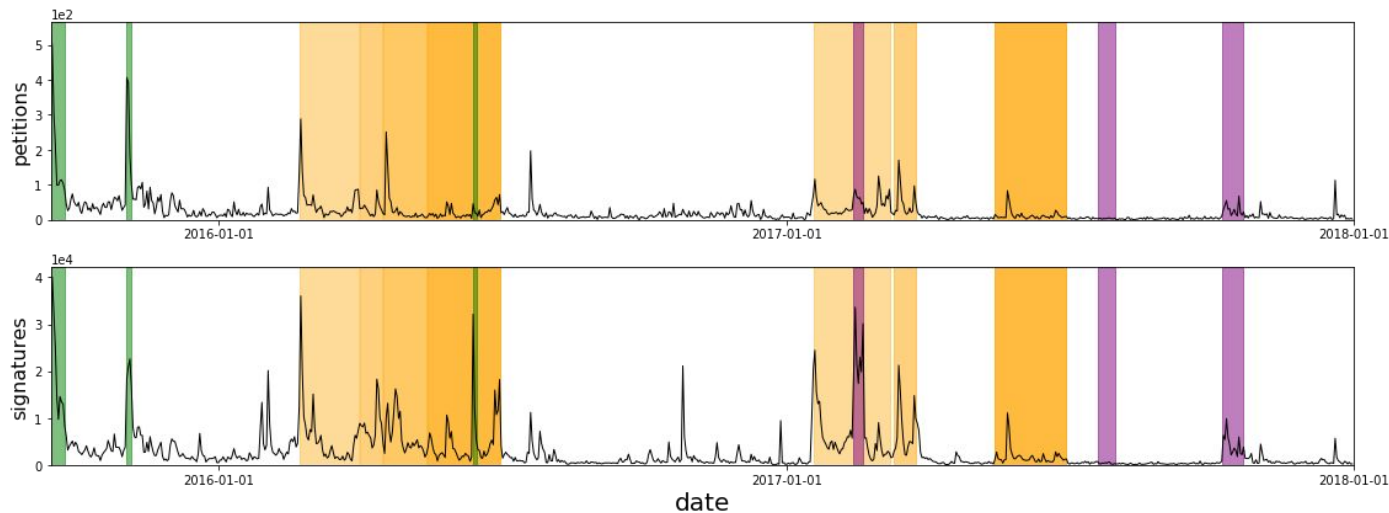
(Box plot categories: open budgets 2016, open budgets 2017, great voting, walls voting, squares voting, promo 1, promo 2, mailing 1, no process)

Distribution of petitions and signatures in Decidim Barcelona

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Distribution of petitions and signatures
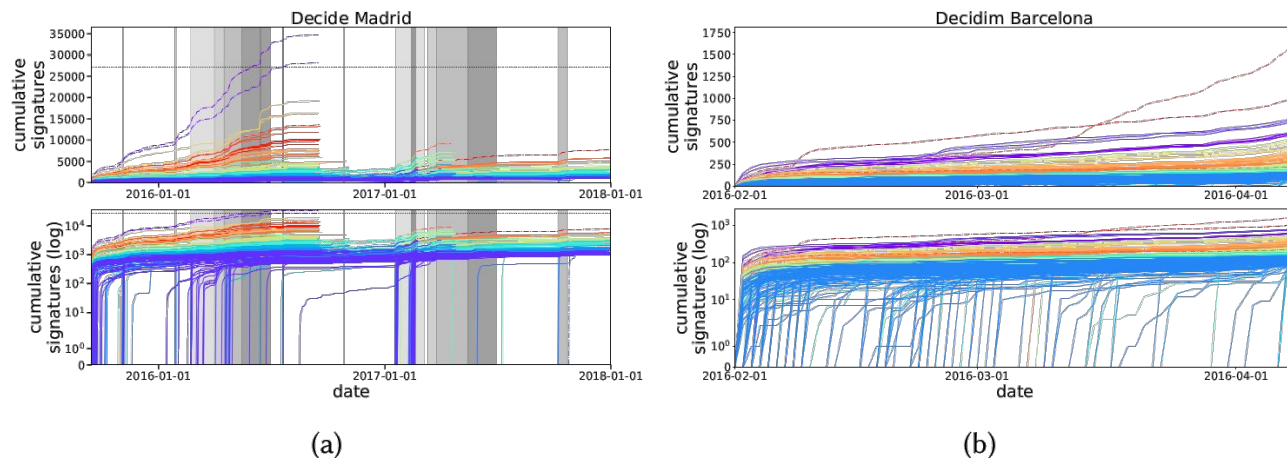
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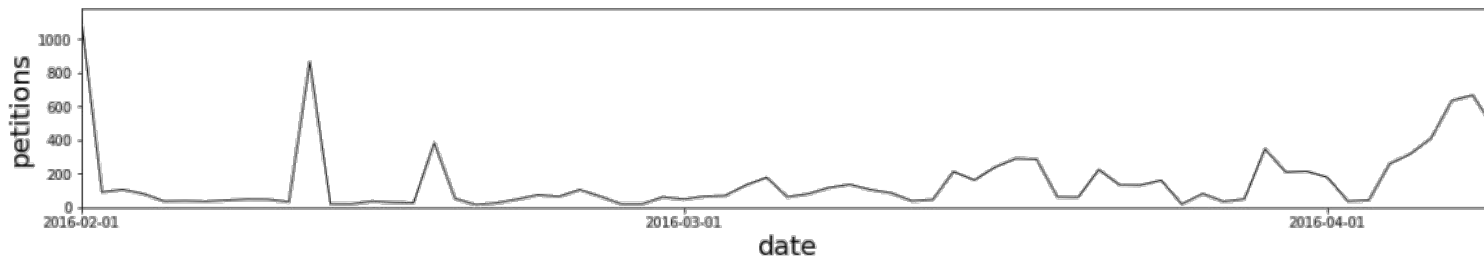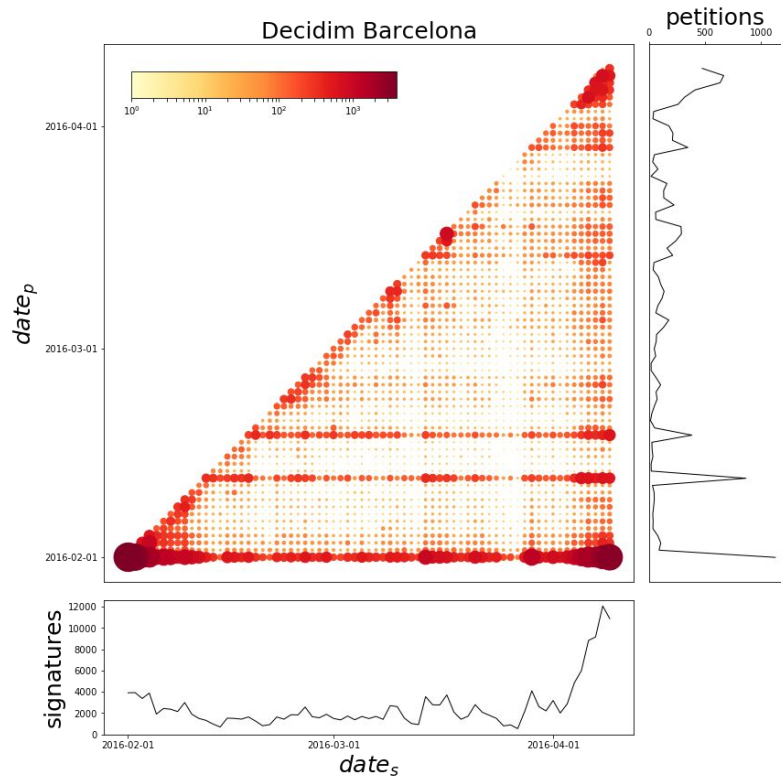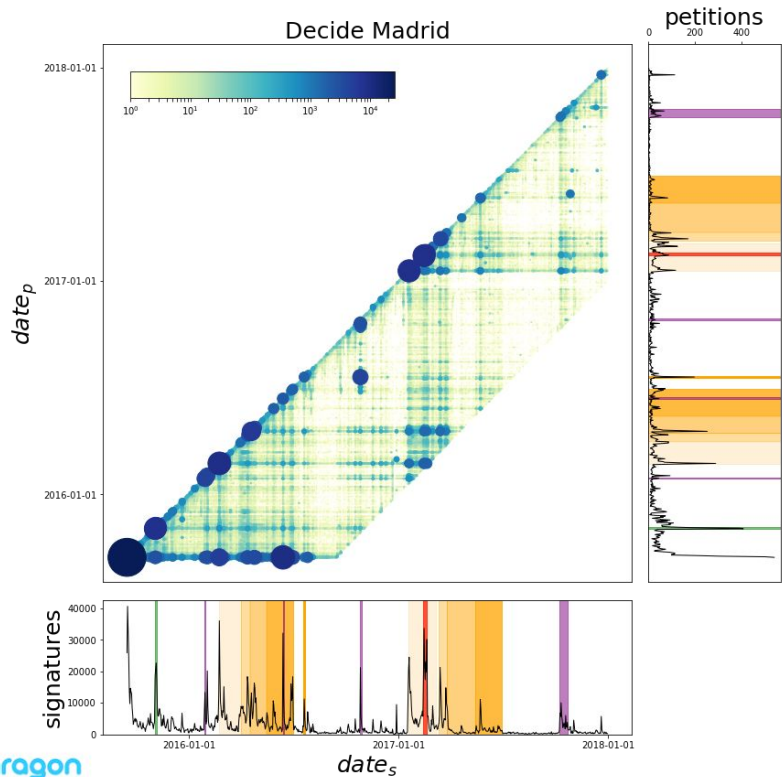
Growth patterns of petition signing

Fig. 4. (a) Cumulative number of signatures over time for each of the 1% most signed petitions from *Decide Madrid* with a linear scale (top) and log scale (bottom). Colors indicate clusters, dashed lines are used for clusters containing only 1 petition, and the dotted horizontal line is the 27,064 signatures threshold. For better readability, colorbars (other participatory processes) are gray-colored. (b) Same graphs for the 1% most signed petitions from *Decidim Barcelona*.

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Findings

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How does hosting simultaneous participatory processes affect petition signing?

- Major peaks of activity for both petitioning and signing when other processes are held.
- The purpose of 'Citizen Proposals' as real-time channel to generate public policies is severely affected.
- Other participatory processes operate as important, but indirect, motivations.

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Findings

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How does the sorting criteria of petitions on the front page affect their growth patterns?

Decide Madrid   Signing focused to a great extent on recent petitions.
Decidim Barcelona   Signing focused to days with many petitions (sampling).

Is the rapid rise and decay of petition signing
- *generated by the accelerated nature of online environments?*
- an effect of using recency as a criterion for sorting petitions on the front pages of most of these platforms?

New algorithm for ranking

https://github.com/AyuntamientoMadrid/consul/pull/1742

Original Hot score
Petition signing is forced to daily grow in an exponential manner (i.e. petitions loose visibility before reaching the

$$H_p \propto \frac{\log_{10}(\max(1, s_p + w \cdot c_p)) \cdot s_p}{\max(1, s_p + w \cdot c_p)} + t_p \approx \log_{10}(s_p) + t_p$$

New Hot score
The new home page features not recent petitions but petitions which are recently drawing attention (signatures).

$$H'_p = \frac{s'_p}{\min(30, t_{now} - t_p)},$$

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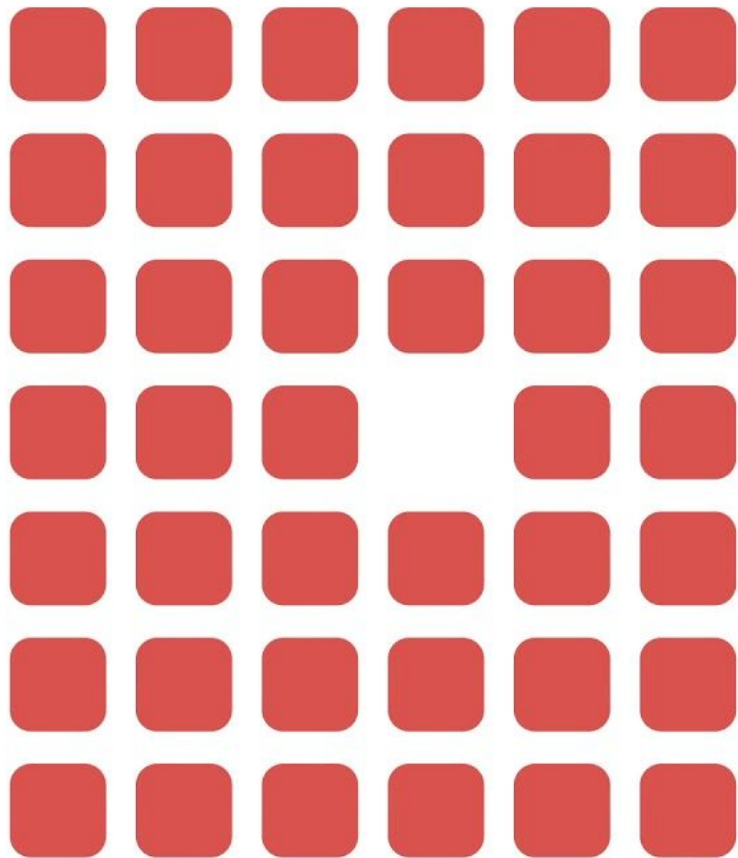
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