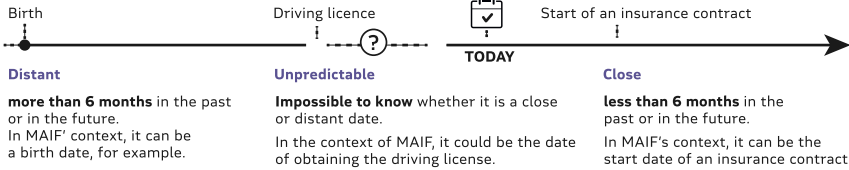


Entering dates has become so routine that we often overlook the difficulties users might face, sometimes causing them to abandon the task. This study examines the **effectiveness and efficiency of four date entry methods**, including the popular date-picker. The experiment involved **30 participants** entering around **60 dates each**, with a focus on 3 variables.

The analysis, both qualitative and statistical, measured entry times, abandonments, and errors. Results indicate that the **date-picker is the least effective method** and should not be the default option unless it adds value, especially for near dates. **Single-field components were found to be the best**, as they are well-received and allow for significantly faster date entry.

Years before the problem known 3 types of date are asked to users in maif.fr's forms



The problem

piano analytics

Significant drop-offs between the stages of maif.fr forms that request personal data and the subsequent stages

Contentsquare

Data analysis with **Content square**, a French solution with which we can study certain elements more precisely, such as:

click recurrence rate: Misused date pickers for date of birth were clicked a lot (rate >10).

Session replays indicated that users spent considerable time on date pickers, as shown by the user's mouse cursor activity over an anonymized interface.

Past theoretical background

Before this study, best practices have been studied to align with the insurance context.

- One notable study** by Bargas-Avila et al. (2011), summarized in a blog post by Raphaël Yharrassary, provided **key recommendations** :
- **Native date-pickers for entering close dates** though they only support date picking on mobile devices.
 - **A custom input for entering distant dates** allowing only keyboard entry is advised.
- At this time the design system was poorly documented : these recommendations were not consistently followed.

To define our components. Key findings include:

- **Calendar (date-picker)**: Useful for knowing the exact weekday but impractical for dates far in the future or past. We take into account close and distant dates.
- **Free input field**: Fastest with top-aligned labels, but less comfortable and efficient with permanent placeholders. We test 2 components.

- **Three separate input fields** (day, month, year): Better for understanding and avoiding database errors but takes more time to fill. We test this component.

This study aims to test user performance and habits, particularly on desktop and mobile, for close and distant dates, and a new, accessibility-improved free input field.

All participants used these 4 components.

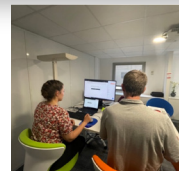
- 1 Date-picker**
Their behaviors are managed by the OS on mobile phones or by browsers on desktop computers.
- 2 Old input field**
Recommended until 2022 (but not accessible), a custom input field that displays numbers keyboard on mobile.
- 3 3 fields**
An entry for each part of the date Day/Month/Year. But to be compliant with accessibility criteria, we chose not to automatically advance focus.
- 4 New input field**
Free input field with features we wanted to test to improve accessibility and usability. We also chose a custom "type tel" input field for the same reasons.


30 participants
11 men, 18 women, mean age 40.5 years (SD = 8.5), all employed of MAIF, 1 hour per participant.

64 dates per participant
4 dates per condition, all participants see the same 64 dates (counterbalanced order).

Table legend

- Start: Introduction;
- M1 & M2: explanation media 1 & 2;
- explanation and trial run each component;
- CL & DS: Close dates to enter & Distant dates;
- Forms after each component and at the end.



	Variables	Value	Mod.	Order
<D2>	Types of date	Close: up to 4 months in the past or future Distant: beyond 6 months in the past	2	Counterbalanced order
<C4>	Components	See fig. 1 2 3 4	4	Latin square
<M2>	Media		2	Fixed order

GROUP	MOBILE	DESKTOP
GROUP 1 (8 Persons)	M1 → Date picker → OLD input field → 3 fields → NEW input field → End	M2 → 3 fields → Date picker → NEW input field → OLD input field → End
GROUP 2 (8 Persons)	M1 → 3 fields → Date picker → NEW input field → OLD input field → End	M2 → NEW input field → 3 fields → OLD input field → Date picker → End
GROUP 3 (7 Persons)	M1 → OLD input field → NEW input field → Date picker → 3 fields → End	M2 → Date picker → OLD input field → 3 fields → NEW input field → End
GROUP 4 (7 Persons)	M1 → NEW input field → 3 fields → OLD input field → Date picker → End	M2 → OLD input field → NEW input field → Date picker → 3 fields → End

Effectiveness Number of abandonments: More than half (12/20) of the abandonments: **Date-Picker with distant dates** on Android-Samsung phone.
Reasons: Some participants use the chevron-left button or swipe month by month... Because they did not perceive the blue region as a clickable element.
Number of incorrect dates entered: In more than half (25/43) of incorrect date cases: date-picker and mostly for entering distant dates.

Efficiency Duration of entry

We measured the time taken to enter correct dates. 64 dates per participant X 30 participants = 1,920 times analyzed.

ANOVA analysis

- **Significantly more time** on both mobile and computer to enter a distant date than a close date
- **No significant differences** between the operating systems.
- **Date-picker**: Significantly more time to enter a distant date
- The average time is 19 seconds to enter a distant date on the datepicker on mobile and 11s on computer.
- On the other components it takes 6s less on mobile and 2s less on computer
- **The fastest components are OLD and NEW input fields** (about 9s on mobile and 6.2s on computer).

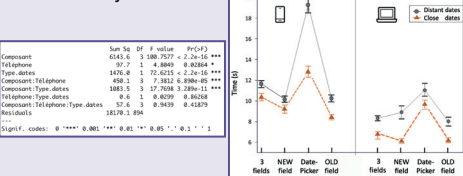
Satisfaction

The feedback questionnaires: 1 form filled out by each participant after each component • 5 feedback questions per form • **We analyzed 1200 evaluations** • We describe the main results.

The most and least liked components:

- The OLD and NEW components
- The Date-Picker and 3 fields components.

Duration of entry on mobile



Least & most liked components



OLD free input field

- Highly appreciated
- Fast to use if no entry errors.

If an error is done and has to be corrected, the evaluation decreases due to **ergonomic and accessibility flaws**.

NEW free input field

- Well appreciated
- Accessible
- Very fast even for corrections
- Best efficacy and efficiency
- First version to improve

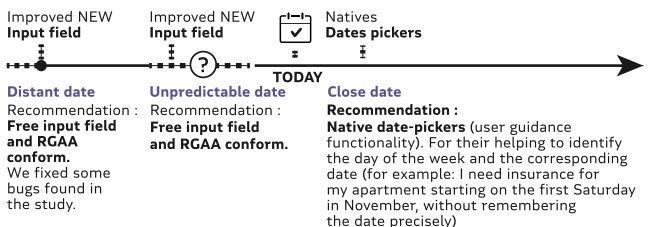
3 separate fields

- Slow
- Not well liked
- To be avoided especially on mobile if the focus is not moved automatically for accessibility reason.

Date-picker

- Their behaviors are managed by the OS on mobile phones or by browsers on desktop computers
- **Hated on mobile** : users have to select a distant date
- Numerous abandonments and errors
- To be avoided for distant dates

Theoretical recommendations and operational implementation.



We developed a ReactJS component with double setting for both types of dates, which has been added to our library.

- Close date : opens a native date-picker
- Distant date : opens the free input field and RGAA conform.

- Bargas-Avila, J. A., Brenzikofer, O., Tuch, A. N., Roth, S. P., & Opwis, K. (2011). *Working towards usable forms on the World Wide Web: Optimizing date entry input fields*. Advances in Human-Computer Interaction, 2011. DOI:10.1155/2011/347171
- Dumaine, E. (2023, March 23). *Améliorer la saisie des dates dans nos funnels*. "MAIF Data Design Tech etc." Medium.
- Wroblewski, L. (2008). *Web form design: filling in the blanks*. Rosenfeld Media.
- Yharrassary, R. (2014, May 28). *Le choix de la date*. Le bloc-notes, UX & Design d'expérience utilisateur.
<https://blocnotes.iergo.fr/concevoir-le-choix-de-la-date/>
- Chalmé, S., & Dumaine, E. (2023, September 28). *Quel est le meilleur composant pour améliorer l'efficacité d'une saisie de date ?* [Conference]. Paris Web, Paris.

Perspectives:

- **Improve the usability** of the NEW free input field.
- **Monitor the evolution of Apple and Google date-pickers**. If mobile keyboard entry becomes easy, reconsider date-pickers for distant dates.
- **Follow updates in Apple & Google keyboard designs** to enhance the custom free input field.
- Explore new paradigms for **known and 'to be determined' dates**.
- **Offer multiple date entry options** for both mobile & desktop to meet usability and accessibility criteria.
- Recognize that native **date-pickers may not be as accessible as assumed**, especially when device font size is increased on iOS.
- **Avoid using date-pickers for distant dates** & reconsider their use for close dates based on accessibility studies.

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- Jérôme Gatefin, lead UX designer
- Liv Danthou Lefebvre, design manager
- François Joachim, ex-design manager
- Julia Goudeau, product manager
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