

JCDecaux



Neuroscience Study #3
**Format quality,
combinations and
optimal frequency**

Full narrative

APRIL 2025





Why **Neuroscience?**

Humans are **emotive and reactive** creatures

95% of our behaviour and **decision-making is driven by our subconscious**

People struggle to consciously articulate their response to stimulus; **claimed advertising studies have been proven to be inaccurate**

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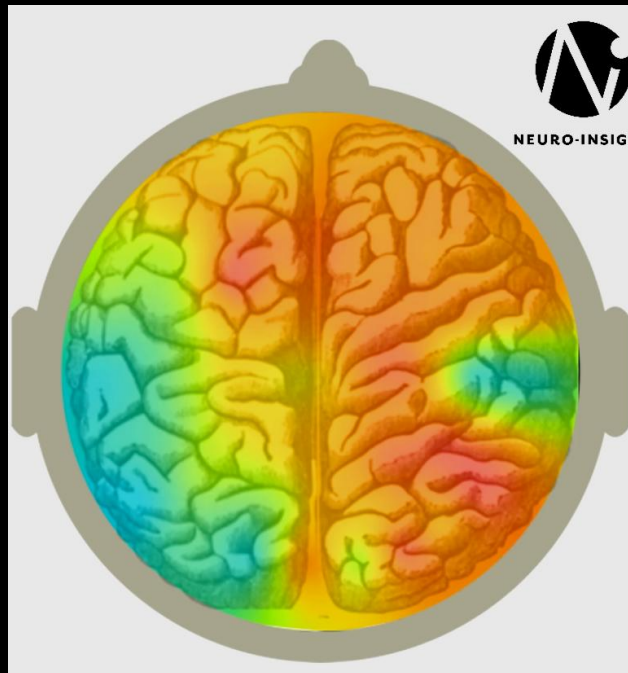
Neuroscience allows us to **accurately measure the brain's response** to stimulus; in this scenario, campaigns on Out-of-Home formats.

Long term memory encoding tell us whether the brain is storing information for future 'use' – decision making in the moment.

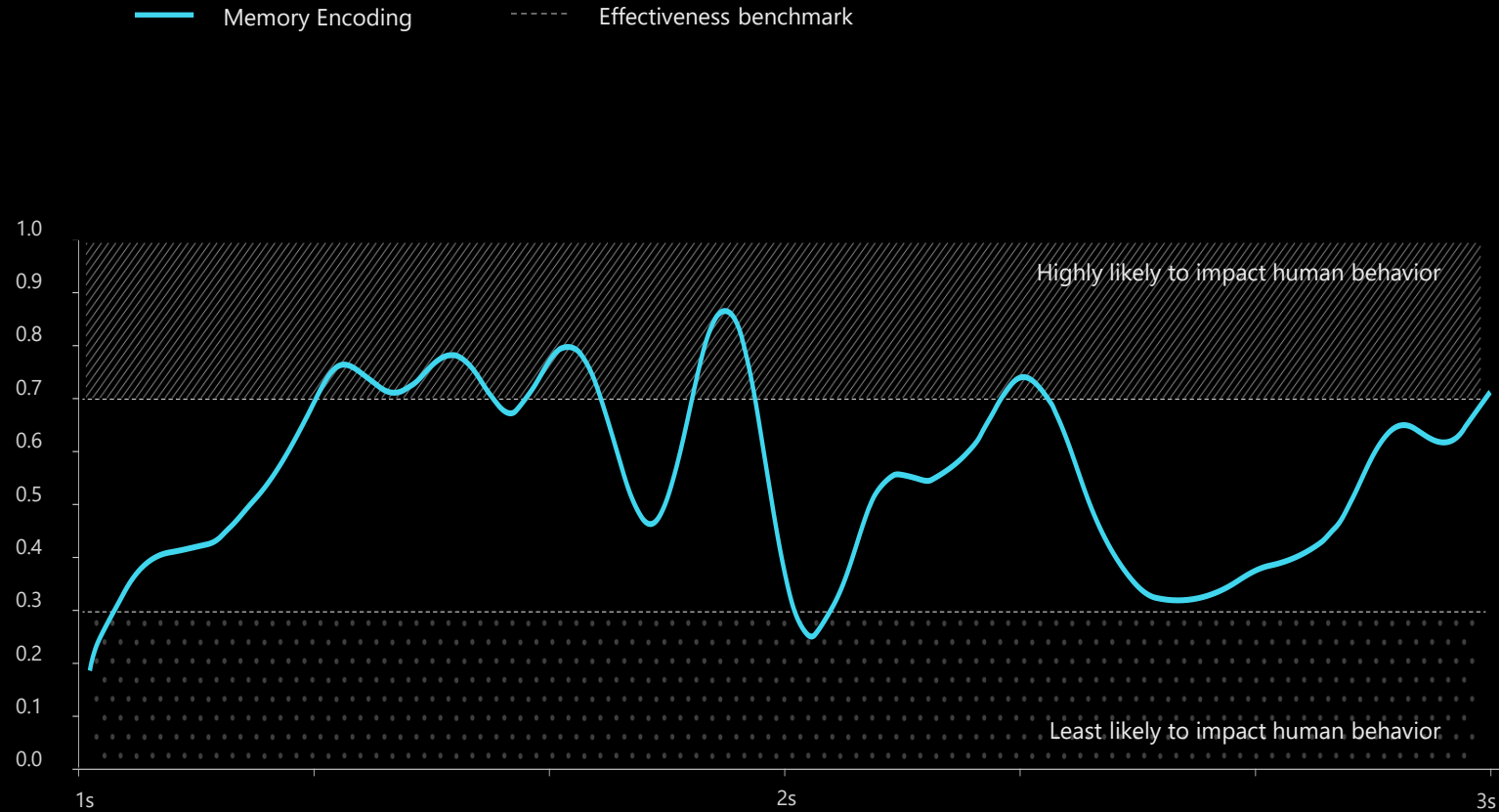


Measuring **Memory Encoding**

SECOND-BY-SECOND ANALYSIS OF SPECIFIC NEUROMETRIC PERFORMANCE



Low  High



The number to remember

0.70

The threshold for influencing behaviour change. Anything below this may achieve marketing objectives, but is less likely to impact mental availability and thus sales outcomes.

Key neuro metric:

MEMORY ENCODING (ME)

ME
CORRELATES
86%
TO SALES, FROM
ITS INFLUENCE ON
DECISION MAKING

Peer reviewed and validated over a number of studies.



Metrics in this study

MEMORY ENCODING

Measures the brain encoding information; most important metric as linked with behaviour change & decision-making.

ENGAGEMENT

An indicator of how involved people are.

EMOTIONAL INTENSITY

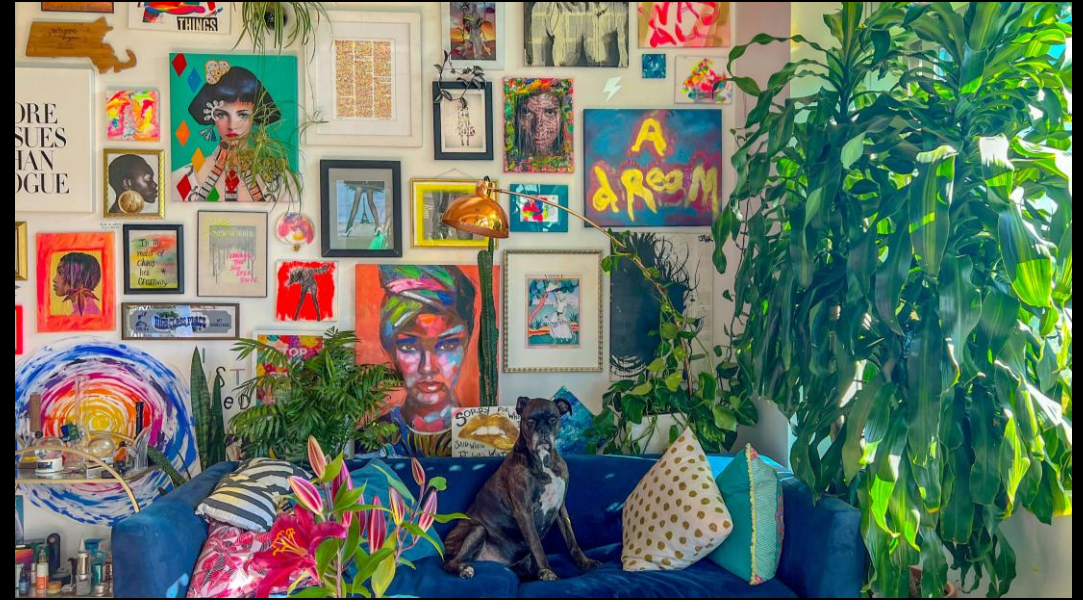
Relates to the strength of emotion being experienced.

ATTENTION

Gauges how visually engaging elements are when they are being attended to.

The brain encodes neural associations from every encounter with a brand, creating a **'brand room' in the brain**, from which it can reference.

The **quantity** and **quality** of memory structures is what fuels mental availability and thus decision making.



From previous
neuroscience studies
we know...



We know from previous neuro studies...

Our sub-conscious is alert when outdoors, which aids in higher processing, engagement, emotion and encoding, which all influence future decision making

Changes in our environment, when outdoors, command attention; hence higher attention given to digital Out-of-Home, due to rotations

Even a 2 second interaction can build or refresh memory structures

JCDcaux NZ Study – average peak ME of 0.69 and peaks of up to 1.25. Higher ME than radio; similar to 15 sec TVC

Large Format delivers a global bias in response (right brain) – “emotional horsepower and deeper meaning”

City of Sydney Study – 26% higher memory encoding, increasing size by 10%

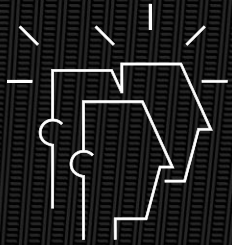
Ocean Outdoor UK Studies – premium sites and locations deliver longer engagement, priming effects and creative is super-charged



JCDcaux



Which means...

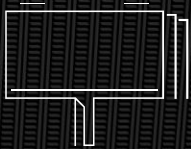


Out-of-Home is working hard,
day in and out, delivering impactful
brand moments at high frequencies



**As other channels fragment and lose
audiences,** the potential of Out-of-Home
continues to grow, offering unique reach
and impact opportunity for brands

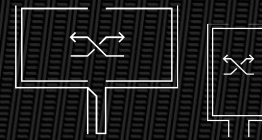
We wanted to know more...



How do larger formats compare with smaller in NZ setting?



What can we learn from Neuroscience about SMARTFRAME?



What are the benefits of using formats together?



How does frequency impact neural response to campaigns?



Methodology:

Third JCDecaux Neuro Study

Objectives:

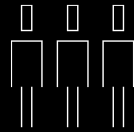
- Compare Out of Home formats - Street Furniture, SMARTFRAME, Large Format
 - Understand how format combinations change the neural response
 - Explore how the neural response changes over multiple frequencies
 - Share executional learnings based on creative in study
-

Three partner brands: (multiple campaigns across cells)

- McDonalds
- The Warehouse
- Persil (Unilever)



Study design



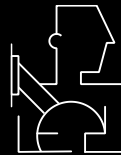
Sample

- 192 SST participants



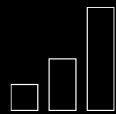
Location

- Auckland NZ



Stimulus

- A natural journey through Auckland
- Driving POV
- Exposed to Out-of-Home sites with partner campaigns

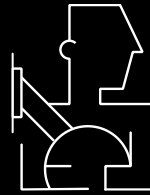


Measurement

- Steady-State topography (SST)



Part 1 & 2:

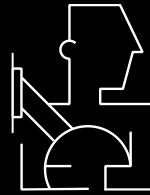


Format comparison

- Natural frequency for formats; respondents view a range of formats, each campaign is isolated to a single format
- Campaigns on each format, averaged, to mitigate creative or frequency effect



Part 3:



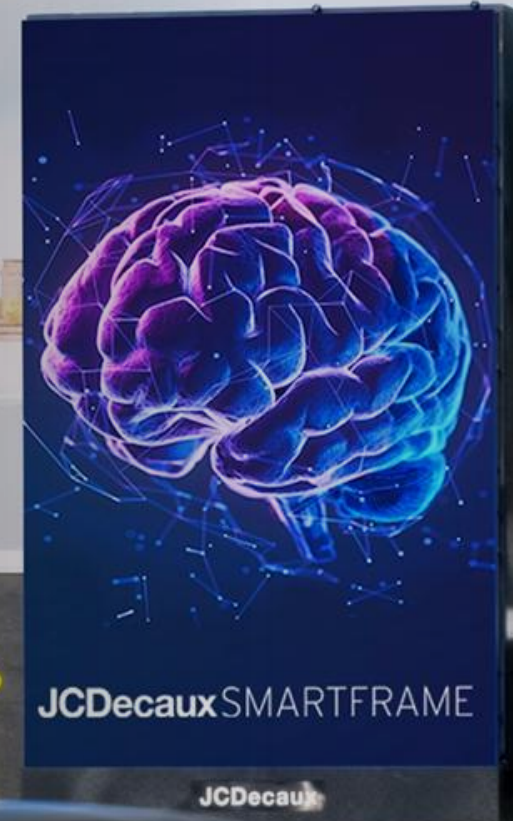
Understanding effective frequency

- Respondents return three times, over 8 days, and experience the same journey and campaigns
- Measure campaign response, across nine exposures. Understand how different formats perform

Part 1: Format comparison

Objectives:

1. Understand the neural response of different formats during a typical commute
2. Gain insights into the unique benefits of JCDecaux SMARTFRAME



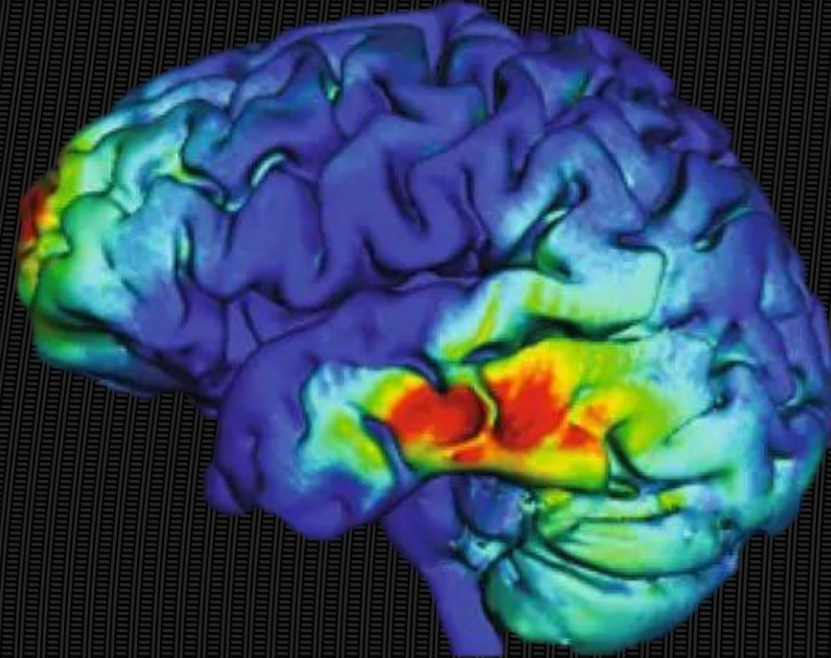
Strength and influence of Out-of-Home channel,
seen in previous neuro studies, reinforced

Average

.79

peak MEMORY ENCODING

Av three formats



Memory encoding well above decision making threshold (0.70).

Memorable, attention grabbing, engaging and emotional.

Out-of-Home channel influences convincingly on secondary neuro measures.

Average

.79

ATTENTION

Across three formats

Average

.78

ENGAGEMENT

Across three formats

Average

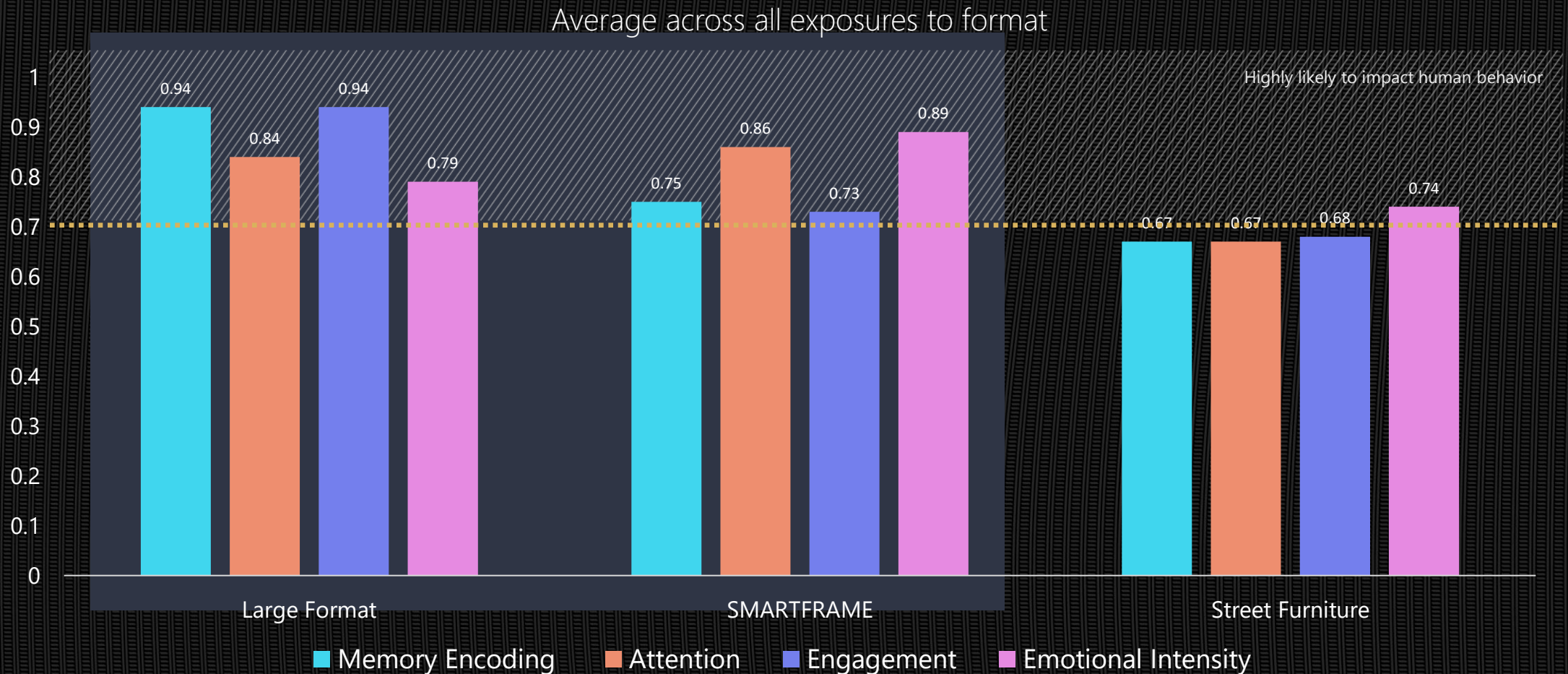
.79

EMOTIONAL INTENSITY

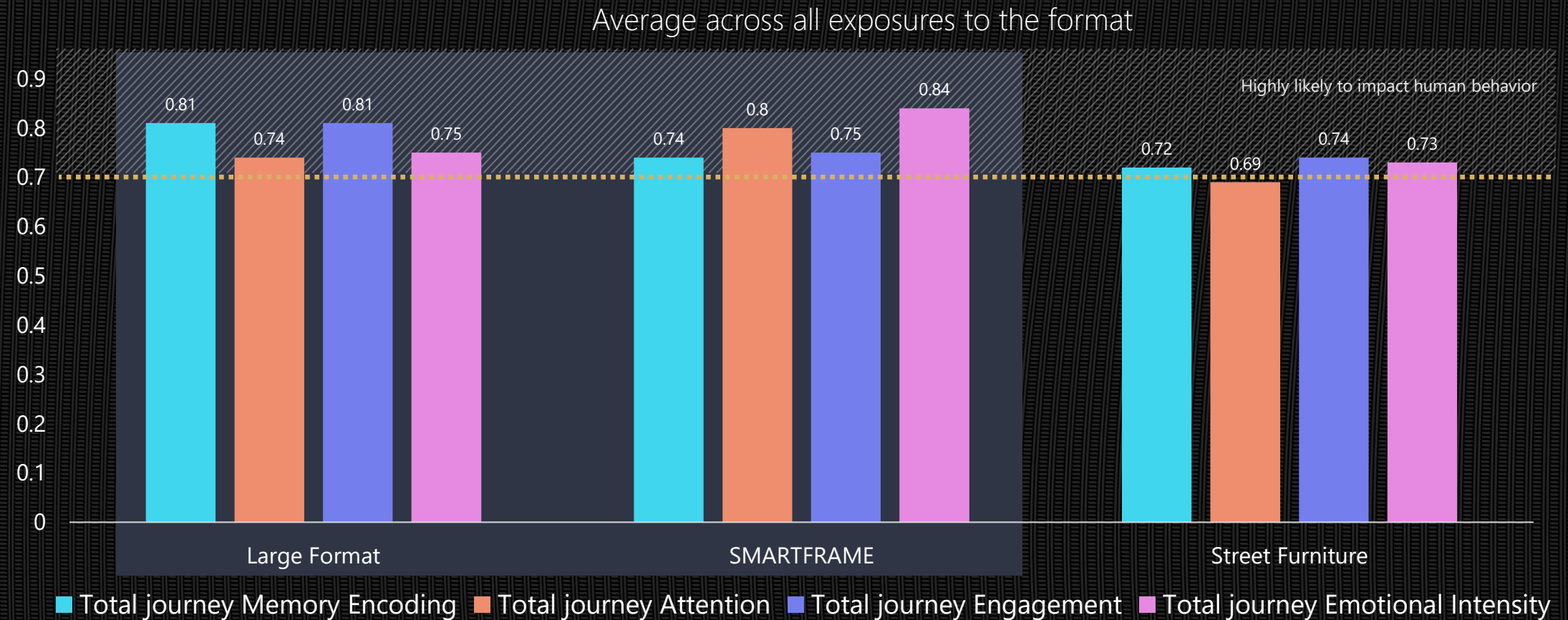
Across three formats

Decision making threshold (0.70).

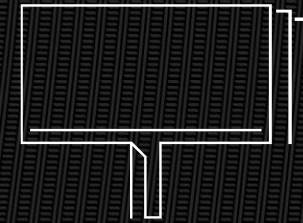
Starting with a single journey, **JCDecaux formats deliver a higher neural responses** than Street Furniture,



Over the total experience, **JCDecaux formats delivered higher neural responses** than Street Furniture



JCDecaux hero **Large Format**, is seen to deliver maximum memory encoding and engagement



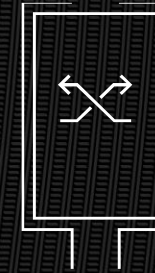
Average
Memory
Encoding:

.81

Average
Engagement:

.81

JCDecaux SMARTFRAME achieves **record emotional intensity**,
and the highest attention



Average
Memory
Encoding:

.74

Average
Emotional
Intensity:

.84

Average
Visual
Attention:

.76

Street Furniture **is seen to be less effective than JCDecaux formats**

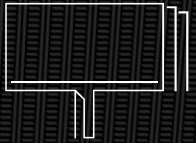
On the first journey, Street Furniture **fails to reach average thresholds**. Memory Encoding, which indicates decision making influence, sits below 0.70 required for sales impact.

Street Furniture surpasses benchmarks on the second and third journey, however **averages achieved sit below what is seen by JCDecaux formats**.

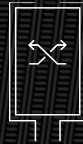
See frequency findings for some insights as to why.



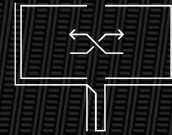
Implications for brands



Large, commanding, emotive Out-of-Home offers a unique opportunity for attention, engagement and memorability = proven to influence decision making



SMARTFRAME is a unique format, that offers high emotional intensity and attention

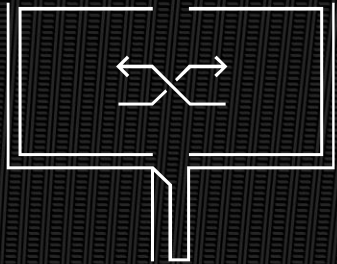


Not all Out-of-Home formats are equal; this should be considered when comparing reach across formats



'Be seen, be remembered' on JCDecaux formats – this study proves beyond doubt, that our formats deliver on this brand promise

Understanding Large Format & SMARTFRAME strengths suggests they offer **separate roles in a campaign**



Large – impact & memorability



SMART – attention & emotional intensity

Part 2: Format combinations

Objectives:

1. Understand how Out-of-Home formats work in combination



We know from effectiveness studies...

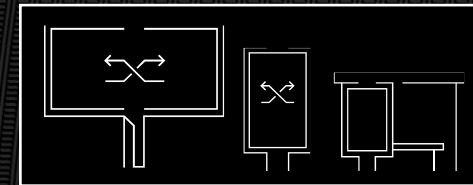
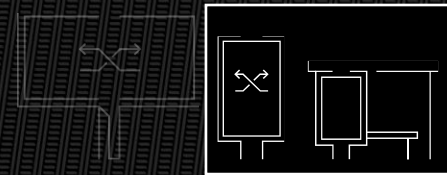
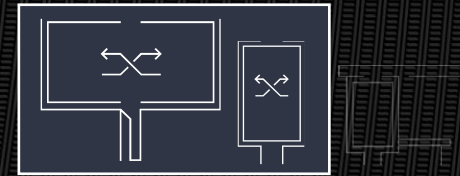
Campaign ROI is highest when more channels are used; Out-of-Home ROI is higher, when multiple Out-of-Home formats are engaged

This is mostly due to incremental reach delivered by more channels



Three formats analysed

1. Large Format & SMARTFRAME (JCDecaux offering)
2. SMARTFRAME & Street Furniture
3. Large Format, SMARTFRAME and Street Furniture



Results are for the entire experience (three journeys) and averaged across multiple campaigns.

Neuroscience validates a multi-format approach when planning Out-of-Home

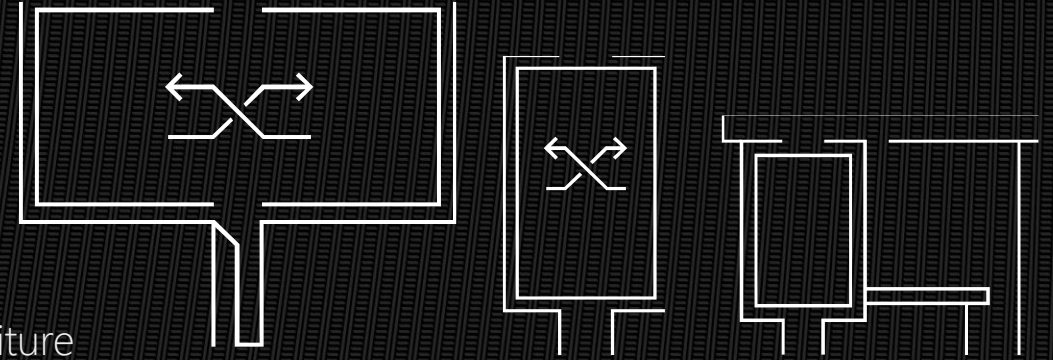
Average

.82

peak Memory Encoding

Across three journeys

Large Format, SMARTFRAME & Street Furniture



Using three formats together, delivers **impressive results**, across neural metrics.

+12 above threshold for sales outcomes

Highest scores for attention, emotional intensity and engagement, and all above the 0.70 benchmark

JCDecaux combined proposition, Large Format & SMARTFRAME,
is a **best of both world's solution**

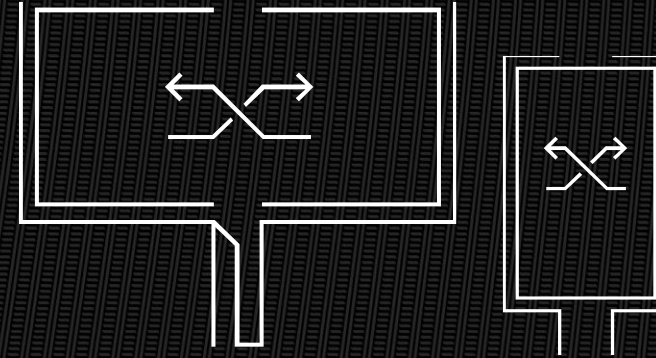
Average

.80

peak Memory Encoding

Across three journeys

Large Format & SMARTFRAME



+10 above threshold for sales outcomes

SMARTFRAME delivers higher attention and emotional intensity, offering a 'best of both worlds' solution when being combined with Large Format.

This combination:

+6 ME SMARTFRAME alone

+8 ME Street Furniture alone

SMARTFRAME's addition to Street Furniture, **boosts performance** of campaigns

Average

.76

peak Memory Encoding

Across three journeys
SMARTFRAME & Street Furniture

+6 above threshold for sales outcomes

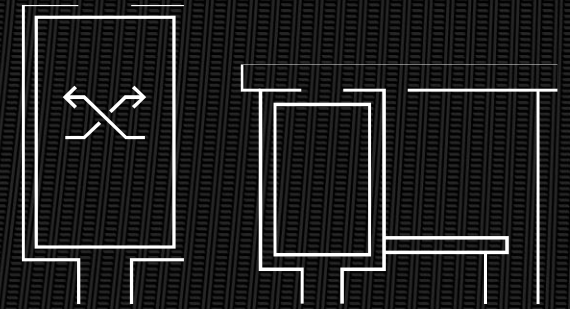
This combination:

+4 ME SMARTFRAME alone

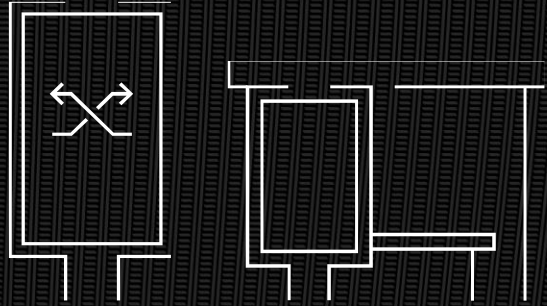
+8 ME Street Furniture alone

Street Furniture delivers a detailed ME bias; a 'left brain' response

SMARTFRAME's **strong emotional intensity offers more 'right brain' response**, balancing and improving the overall emotional impact



Same creative, **different response**

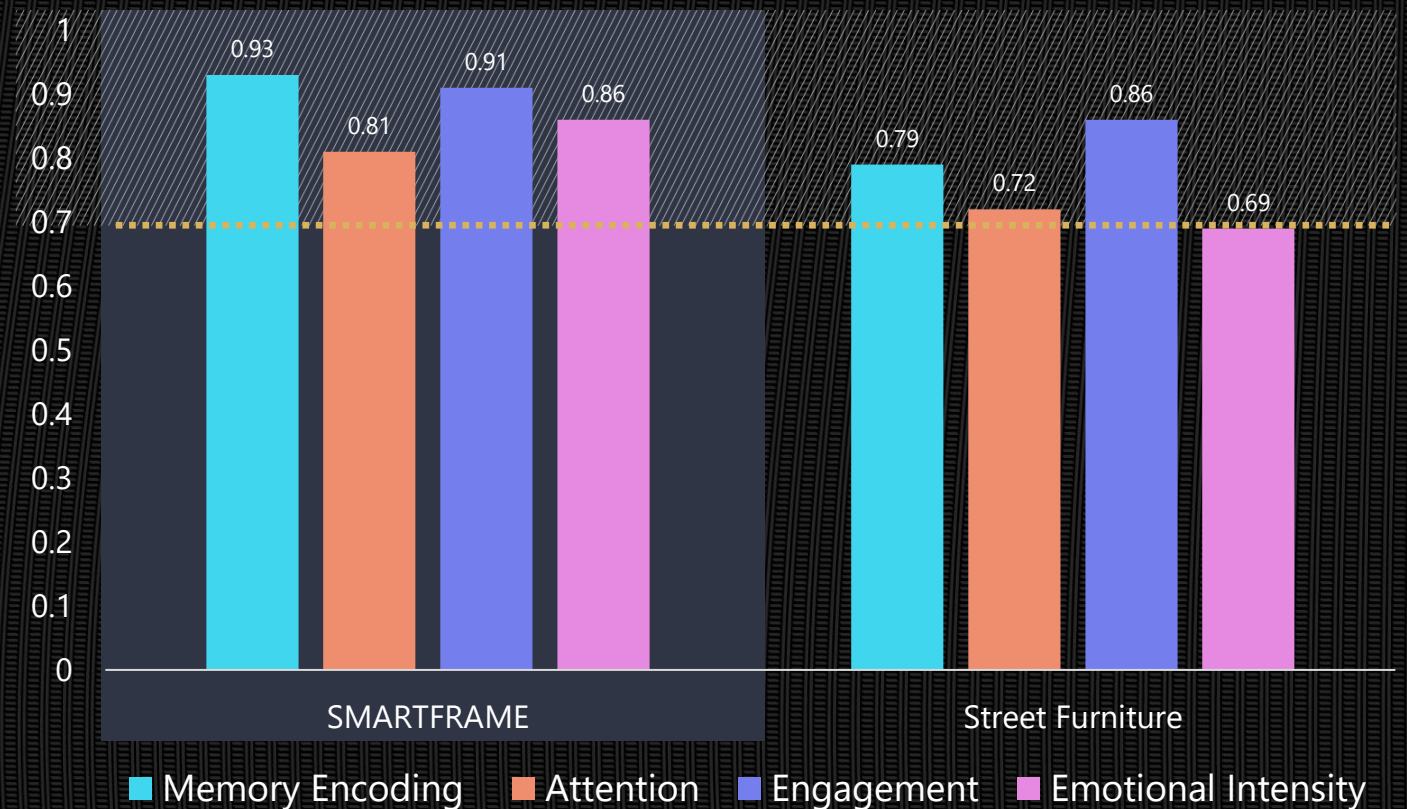


Partner creative comparison:

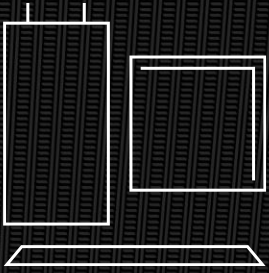
SMARTFRAME's **is seen to deliver higher scores, across metrics**, than Street Furniture

Cells where same creative was used in multi-format test. Seen across multiple campaigns and brands – from simple to complex creative – **consistent finding**.

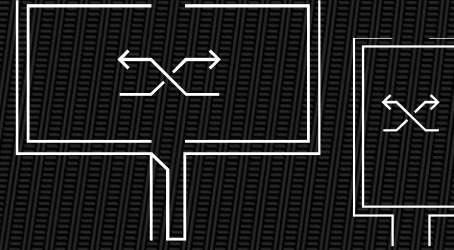
Averages: comparing same portrait creative across formats



Implications for brands



We understand budgets are finite – brands can't always deliver campaigns across every format



Large, commanding and emotive Out-of-Home is shown to be a necessary part of any Out-of-Home plan

Part 3: Optimal Frequency

Objectives:

1. Explore how the neuro state changes over multiple frequencies
2. Gain insights into optimal frequency recommendation for Out-of-Home



We know...

Frequency is often an under-valued benefits of Out-of-Home

CPM tends to be the primary Out-of-Home comparison metric

Net reach is prioritized over gross; some brands lifting and shifting reach to maximise net reach

Only optimal frequency study – 2019, VR and conscious enjoyment. 9 – 12 optimal frequency

Large Format exposures, early in a campaign, makes the brain more responsive to future frequencies



WARC





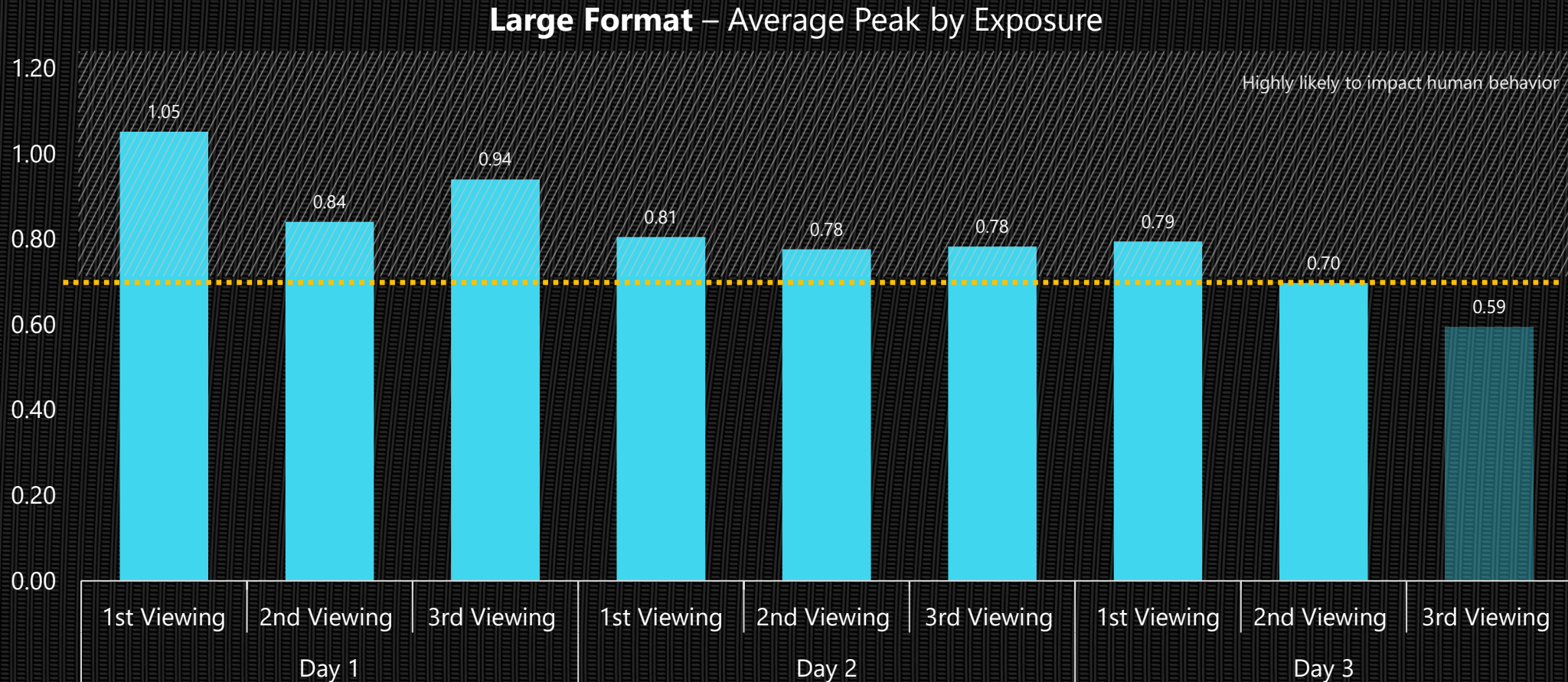
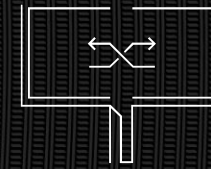
**When analyzing frequency we move from
a format measure, to a campaign measure.**

**We seek to understand how campaigns &
executions deliver across repeated frequencies.**

Why Out-of-Home frequency is necessary



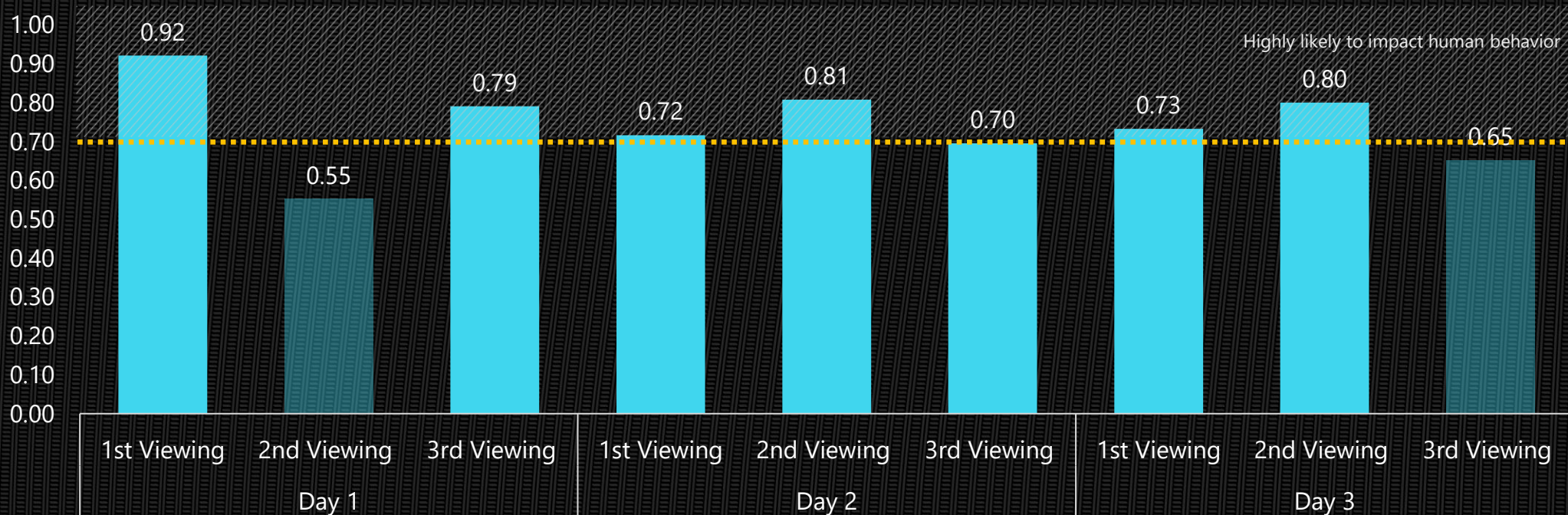
Large Format delivers memory encoding above benchmark until a **frequency of 8**



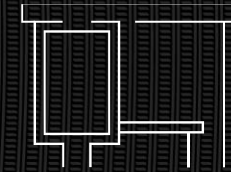
SMARTFRAME delivers memory encoding above benchmark until a **frequency of 8**



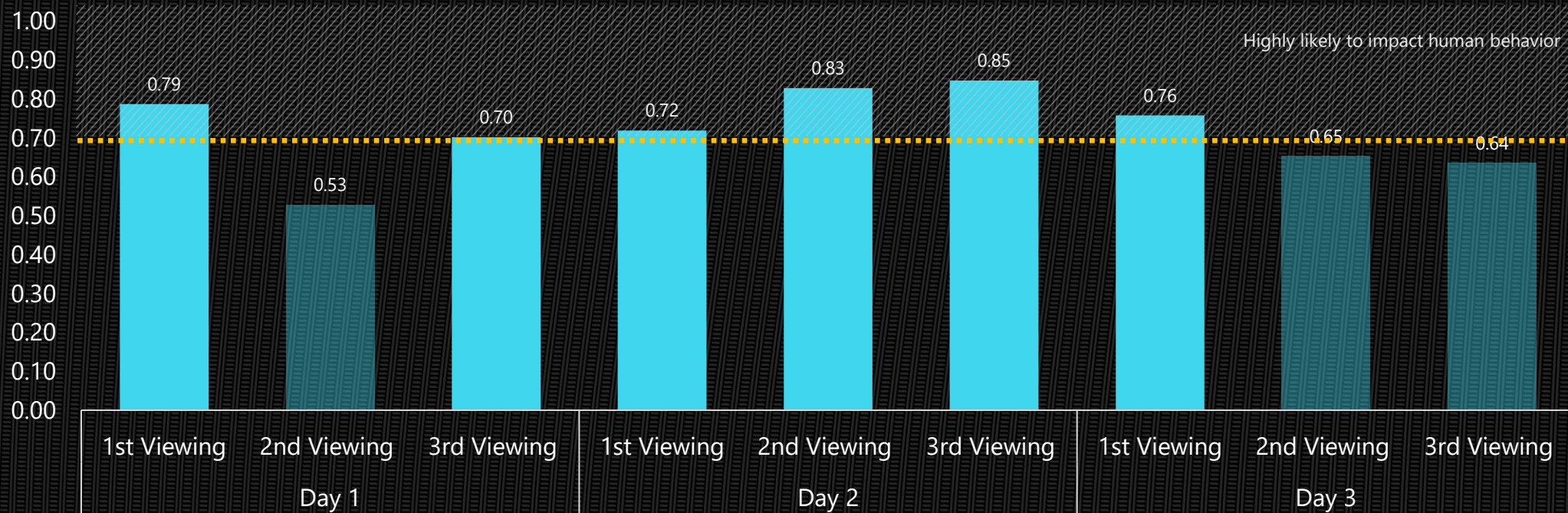
SMARTFRAME – Average Peak by Exposure



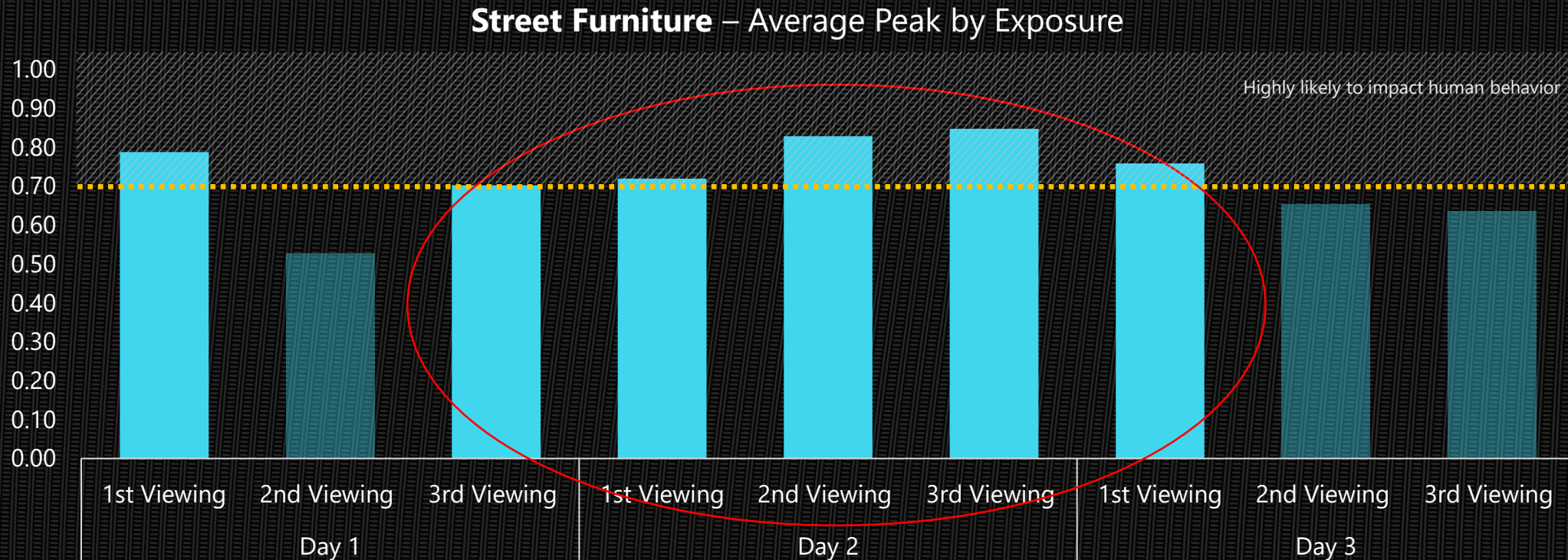
Street Furniture delivers memory encoding above benchmark until a **frequency of 7**



Street Furniture – Average Peak by Exposure



Street Furniture **takes longer** to reach Memory Encoding peaks



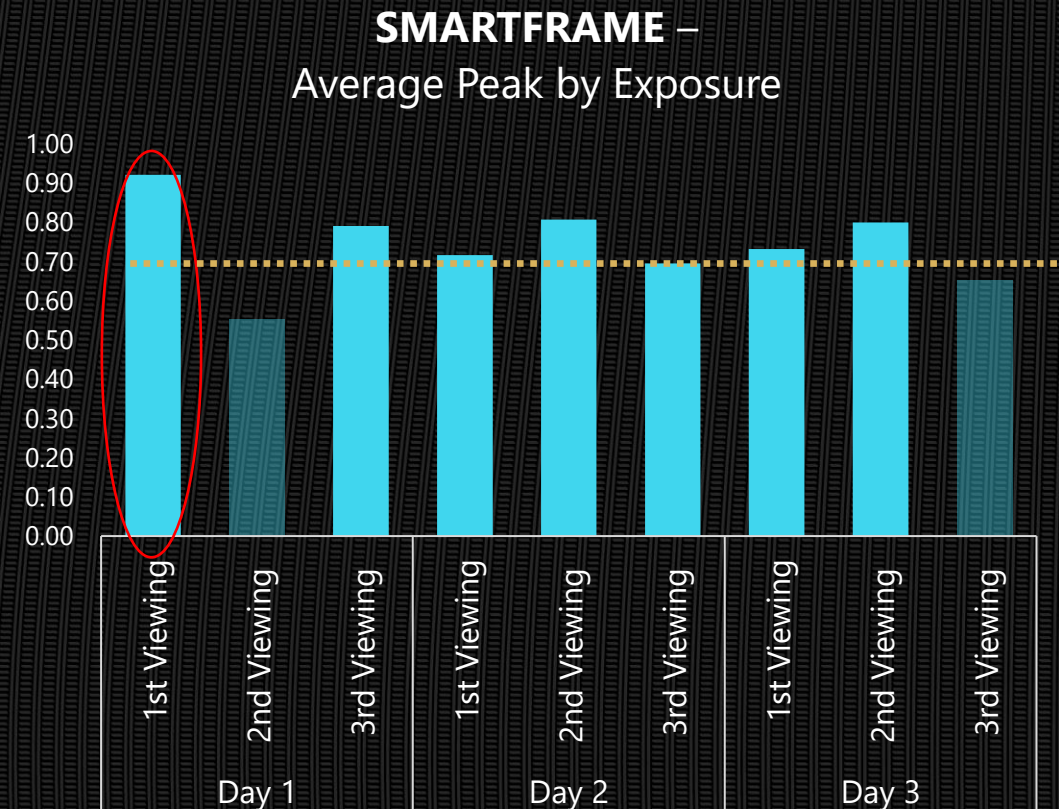
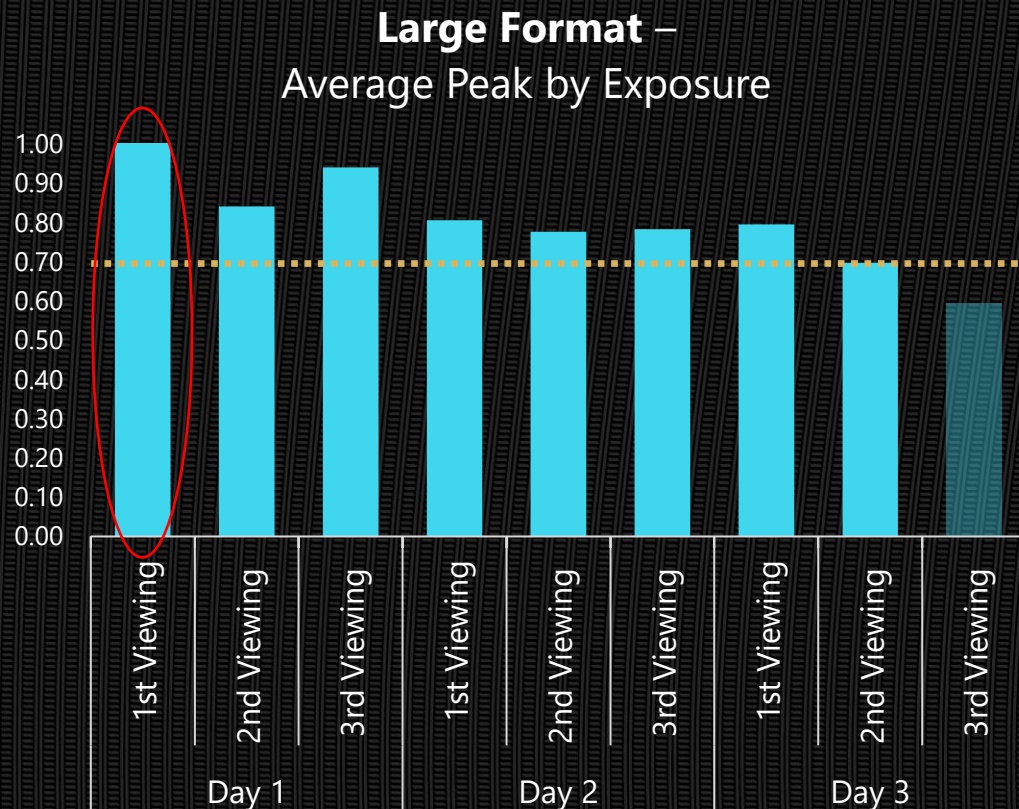
And peaks lower overall, compared with JCDecaux formats. The Street Furniture campaign takes a while to 'warm' with the brain.

This is likely the reason for Street Furniture under performance in the first day journey in our format study.

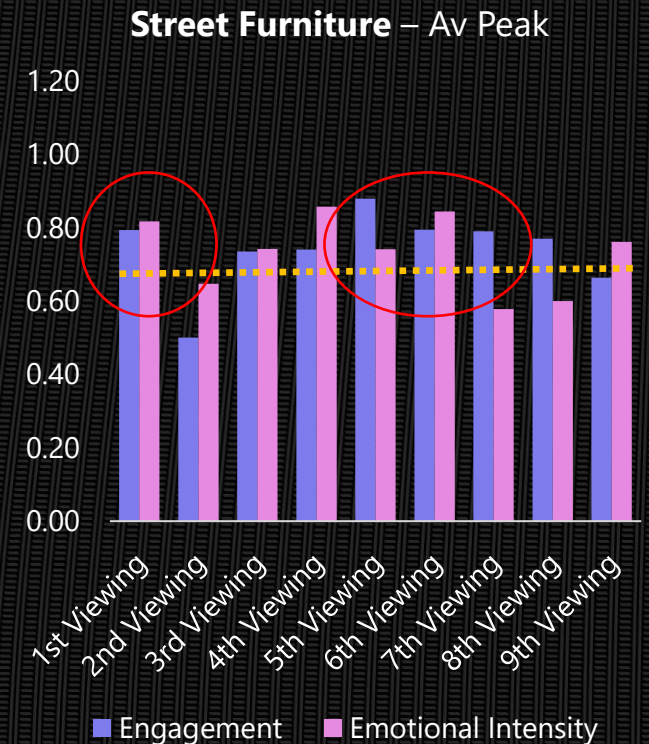
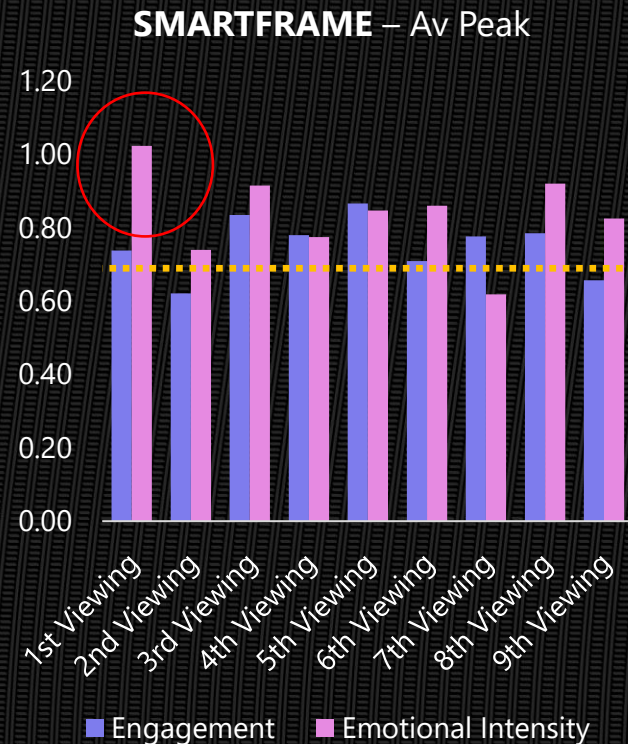
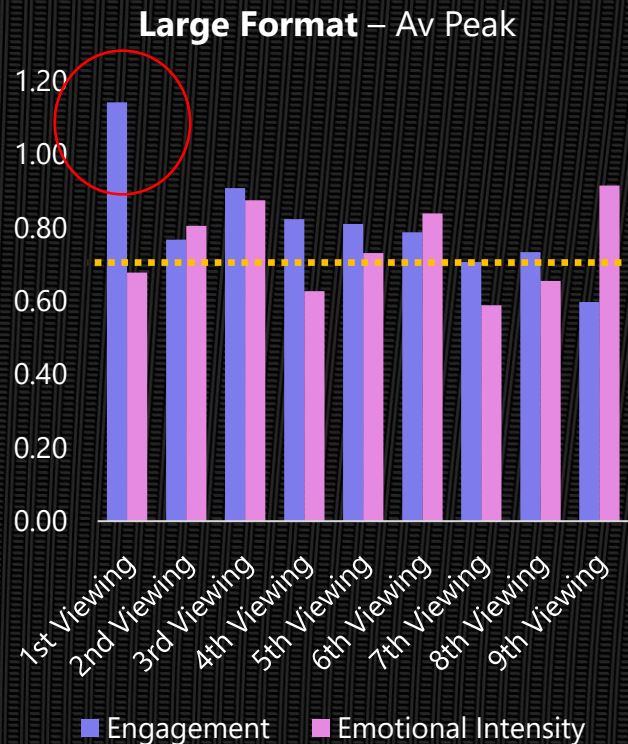


The first exposure, and first exposure each day, deliver strongest peaks for memory encoding with JCDecaux formats

This demonstrates the importance of the first impact, with a campaign.



Second measures fluctuate across frequencies, indicating continued engagement over frequencies – not a one impact phenomenon

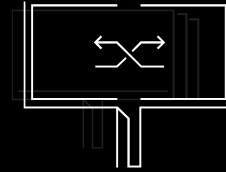


JCDecaux formats are seen for their strengths in the format study, with high impact on the first execution. Street Furniture first impacts are not as strong and as with ME, peak later in the frequency count.



JCDecaux

JCDecaux formats offer different response profiles



Large Format, establishes a strong first moment, and trends downwards from this point (though remains above the 0.70 threshold)



SMARTFRAME, is more consistent, oscillating around the same high levels

This further reinforces role claims:

Large Format –
impact & memorability

SMARTFRAME –
attention & emotional intensity



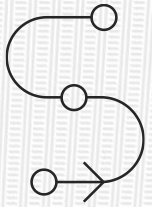
Bonus finding:

The length of engagement
does not influence memorability,
in this study

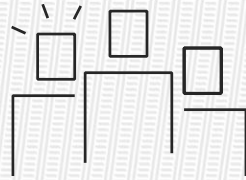
For all formats, visual attention given to creative
decays over the number of exposures, however
memory encoding continues to hold above the
effectiveness benchmark.

Despite less visual attention being given to the
campaign over the repeated frequencies, the brain
continues to encode new information.

Implications for brands



Consider and value frequency; a conversation throughout the campaign. Execution wise – brands don't need to say 'everything' in the first exposure



The first 'moment' with a campaign is key; engagement remains high through to 8/9 exposures

> 3

A frequency of three is too low (missing opportunity – half a conversation and not reaching peaks on Street Furniture)

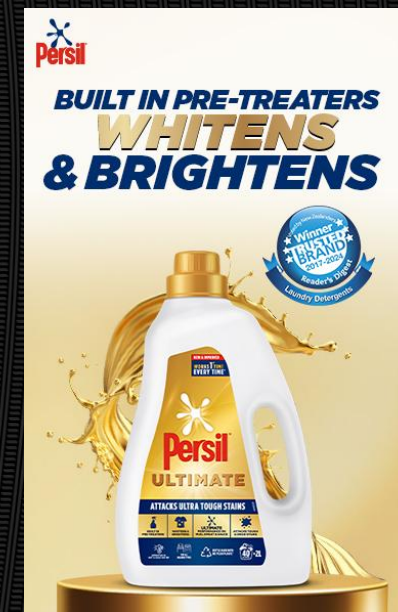


Attention is important, especially for the first exposure, however commercial benefits are still being delivered, as attention given to the creative wanes

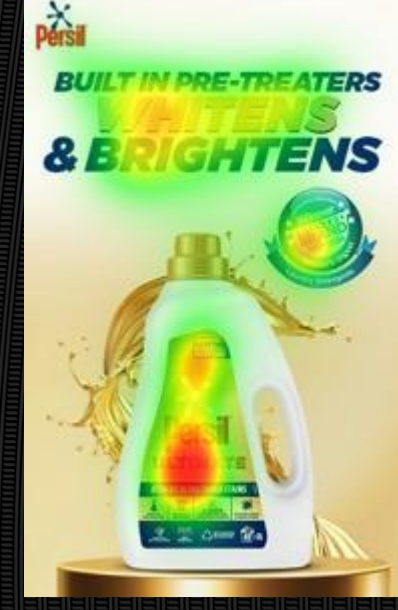
Client
learnings



Client learnings: Persil



Persil: OPTIX



Focus score: 44
Engagement score: 79

Focus score: 37
Engagement score: 72

Focus score: 51
Engagement score: 81

Persil: client learnings. Product on Street Furniture

SALIENCY:

These Street Furniture executions are quite busy (low focus scores); JCDecaux created a third version that is simpler for comparison. Using different colours in the headline reduces saliency.

MEMORY ENCODING SCORES:

Av ME = 0.73. ME peaks at 0.97 on sixth exposure. First ME score of 0.74. Complexity is contributing to lower ME scores, when compared to rugby creative. To note: the campaign featured on Street Furniture, which was the lowest performing format. Street Furniture has a detailed ME bias, meaning information can be communicated via this format. Potentially it could work but would require a wait dwell to engage with all aspects.

Attacks headline performed most strongly, followed by Whitens and then Works 1st time. Attacks was seen first, which typically delivers higher memory encoding.

LEARNINGS:

If using on SMARTFRAME, we would recommend one key message and a single product. This would give the eye a clear focus (typically at the centre) for drive exposures. Branding could be larger and placed at the top (System1 finding).

Persil: Recommendation



Focus score: 62
Engagement score: 82

Persil: OPTIX



Focus score: 44 Engagement score: 95



Focus score: 52 Engagement score: 94



Focus score: 53 Engagement score: 89

Persil: client learnings. Rugby on Large Format

SALIENCY:

This campaign has higher Optix scores. It has people, agency and the headline is large central and against a white background. Focus could be improved by removing secondary elements i.e. people or goal.

MEMORY ENCODING:

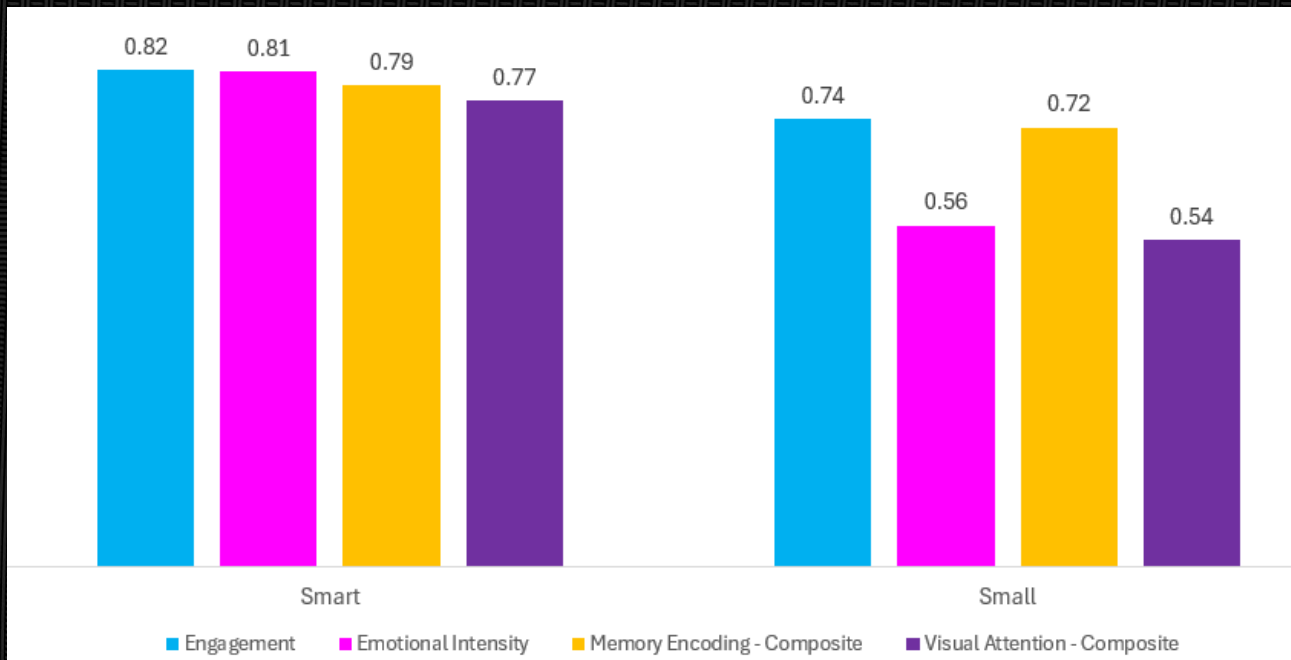
Av ME = 0.78. ME peaks at 1.05 on first exposure. This campaign resonated more strongly than product. People and a storyline help in this way. It will have benefited from appearing on Large Format vs Street Furniture. As was seen with the product campaign, Attacks is the strongest creative; Works first time, is the lowest performing creative.

LEARNINGS:

This is a successful Large Format campaign. We'd recommend removing the secondary line of copy for improved focus and clarity. Also, it could help to remove the small Persil brand and increase the size of the product as the branding device. As above, the image could be simplified further.

Persil: client learnings. Product on multi format.

This campaign was used for the combination of SMARTFRAME & Street Furniture. The scale and emotional intensity that SMARTFRAME delivers, improves the campaign performance. We believe responses could be improved with creative development, from the levels below.



Client learnings: The Warehouse

The Warehouse: OPTIX

BLACK FRIDAY DEAL



\$399
SAVE \$140
Dyson V8 Origin
Stick Vacuum



Limited stock, while stocks last. 900 total units only

**BLACK FRIDAY DEAL
ONE DAY ONLY!**



\$149
SAVE \$150
Veon Portable
Party Speaker
VN260S2020BK



BLACK FRIDAY DEAL

30% OFF
ALL BBQ's &
OUTDOOR FURNITURE
Excluding Beach Furniture & Umbrellas

ON NOW!



BLACK FRIDAY DEAL



\$399
SAVE \$140
Dyson V8 Origin
Stick Vacuum



Limited stock, while stocks last. 900 total units only

**BLACK FRIDAY DEAL
ONE DAY ONLY!**



\$149
SAVE \$150
Veon Portable
Party Speaker
VN260S2020BK



BLACK FRIDAY DEAL

30% OFF
ALL BBQ's &
OUTDOOR FURNITURE
Excluding Beach Furniture & Umbrellas

ON NOW!



The Warehouse: client learnings. Black Friday on SMARTFRAME

SALIENCY:

This is a strong campaign for SMARTFRAME – quite simple and saliency of red on black is good. The central alignment of copy and product provides a clear focus for short, repeated interactions.

MEMORY ENCODING:

Av ME = 0.84. ME peaks at 1.05 on first exposure. Overall campaign engagement was high – people are excited by savings and Black Friday potential. The 30% saving creative was strongest amongst the three – this is commonly seen, as savings are easy for the brain to understand (vs a price saving which requires comparison). The least successful execution was the speaker, though ME improves on the third exposure (potentially it takes longer to understand vs the other two)

The Warehouse: OPTIX

Where you'll find
everything Christmas



Where you'll find
everything Christmas



Find everything
Christmas, **from \$2.**



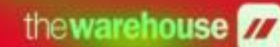
Find everything
Christmas, **from \$2.**



A little bit of
summer fun.
From \$3



A little bit of
summer fun.
From \$3



The Warehouse: client learnings. Christmas on Large Format

SALIENCY:

Saliency is good across the three executions. The Warehouse red (which Optix can't measure) ensures creative is strongly branded, in addition to the logo. The unwrapping image commands less saliency, potentially due to no clear focus area.

MEMORY ENCODING:

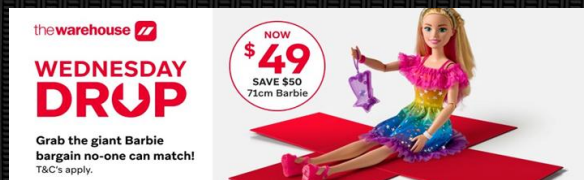
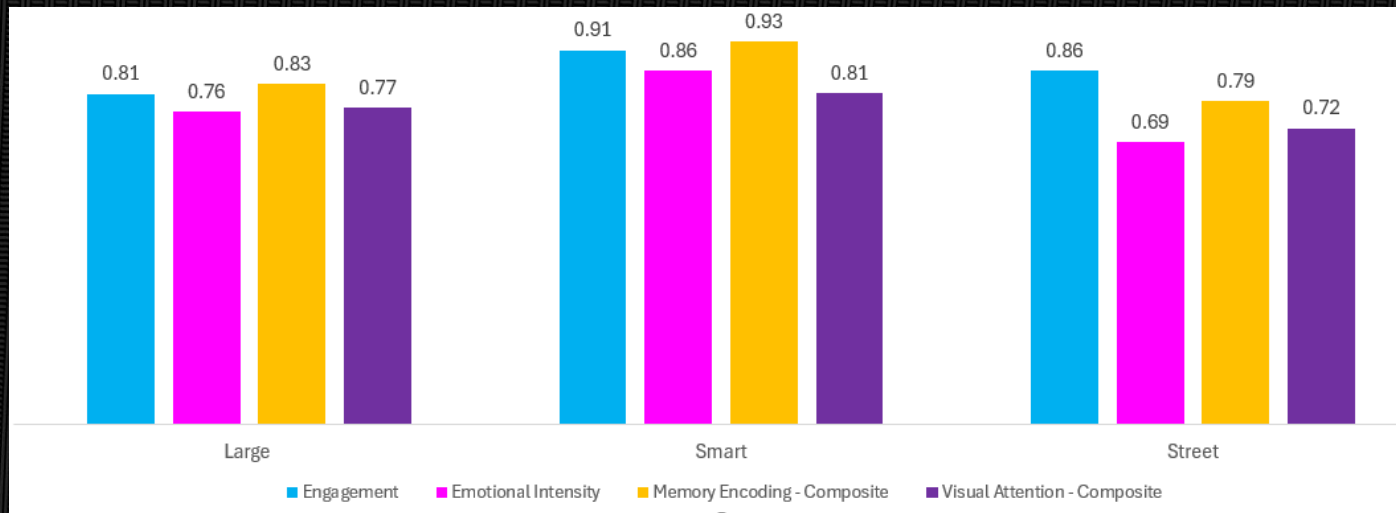
Av ME = 0.71. ME peaks at 0.84 on ninth exposure. This campaign performed quite differently to Black Friday. It had much higher emotional intensity, likely due to the people scenes, but ME overall was lower (potentially it is quite expected). Summer fun scored best overall of the three executions, the busy Christmas scene was least effective. The fun/agency of the image, and warm associations of the Santa, is what is likely to have given higher neural scores to these executions.

The Warehouse: OPTIX



The Warehouse: client learnings. Wednesday Drop on multi format.

All three formats perform well across metrics – JCDecaux formats score higher than Street Furniture, as was seen in the overall study. The portrait layout is stronger (and likely why SMARTFRAME out performs Large Format) – it enables a one eye sweep from top to bottom and is simpler; SMARTFRAME's scale and emotional intensity improve metrics vs Street Furniture (a direct comparison when the same creative is used across these formats).



McDonalds: OPTIX



McDonalds: client learnings. Grimace on SMARTFRAME

SALIENCY:

Strong saliency as a result of simple creative – short headline, engaging character, colour contrast. McDonald's brand in top right corner is potentially superfluous – Grimace is a strong brand code, as is cup.

MEMORY ENCODING:

Av ME = 0.77. ME peaks at 1.12 on first exposure. This was the strongest performing campaign in the study, overall, and second for Av ME. It had the highest peak in the study. Benefiting from SMARTFRAME attention and emotional intensity, the overall campaign strength was in the emotional response. This is a great example of strong creative and strong format working together. Ooh Goody is the strongest execution, though all are strong – due to engagement.

LEARNINGS:

Across the frequencies, the brain is seen to be encoding new information. Given the visual being quite simple, the range of headlines is recommended to extend interest/ neural engagement.

McDonalds: OPTIX



McDonalds: client learnings. Burgers on Street Furniture

SALIENCY:

The three executions enable understanding into how different templates work for saliency. Big Mac is strongest, due to clear central focus. McSpicy less so, as has three areas that require engagement.

MEMORY ENCODING:

Av ME = 0.70. ME peaks at 0.83 on first and eight exposure. This campaign could be described as hard working rather than very effective. It does the basics well but does not get above benchmarks until day 2, which is typical of Street Furniture. Emotional intensity overall is below benchmark, especially on the third day. Big Mac is the most effective execution overall, which is likely due to the imposing burger image and more focused design.

LEARNINGS:

Big, tasty food images are emotional. Overall response seems to fall back on the third day – could be an opportunity for new information, regarding the same product, as the campaign evolves.

APP ONLY

**A deal a day,
all November.**



**30 Days
30 Deals**

Check the app

Only in the Macca's® App. T&Cs Apply

APP ONLY

**A deal a day,
all November.**



**30 Days
30 Deals**

Check the app

Only in the Macca's® App. T&Cs Apply

McDonalds: OPTIX

TODAY ONLY

**6pc Chicken
McNuggets®
Small Combo +
Cheeseburger**

\$9



**30 Days
30 Deals**

Only available between 11am and 11pm on participating weekdays in the UK only. The deal is only available on the McDonald's app for the duration of the campaign. The deal is only available on the McDonald's app for the duration of the campaign. The deal is only available on the McDonald's app for the duration of the campaign.

TODAY ONLY

**6pc Chicken
McNuggets®
Small Combo +
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\$9

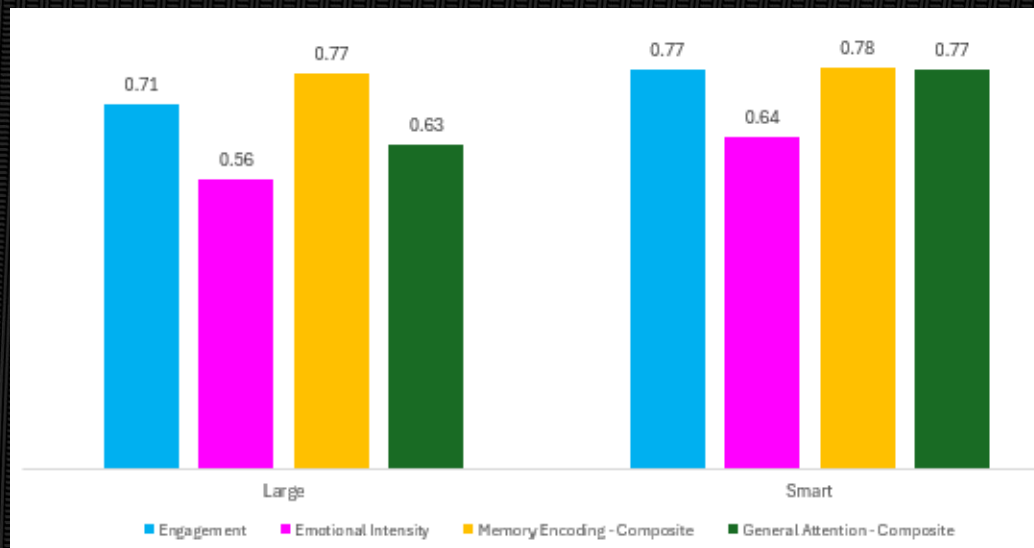


**30 Days
30 Deals**

Only available between 11am and 11pm on participating weekdays in the UK only. The deal is only available on the McDonald's app for the duration of the campaign. The deal is only available on the McDonald's app for the duration of the campaign. The deal is only available on the McDonald's app for the duration of the campaign.

McDonalds: client learnings. Value on Large Format & SMARTFRAME

This value campaign is seen to be performing strongly on SMARTFRAME – more so than on Large Format which is interesting given the larger format's strengths in the first part of the study. This suggests the portrait execution is more effective. The campaign is memorable, well into the ME effectiveness zone. Savings value/ whilst not emotional, are interesting and thus memorable. The combination of the two larger formats can be seen to be effective.



Brand 1 - McDonalds

Campaign 1 – Smart frame

A



B



C



Campaign 2 – Small format

D



E



F



Campaign 3 – Smart + Large format

G



Campaign 1 – Large format



Campaign 2 – Smart format



Campaign 3 - Smart + Small + Large



Persil creatives used in study

Frequency - Street



Frequency – Large

Combination – Street & Smart

