K|D|S

Process & Tools

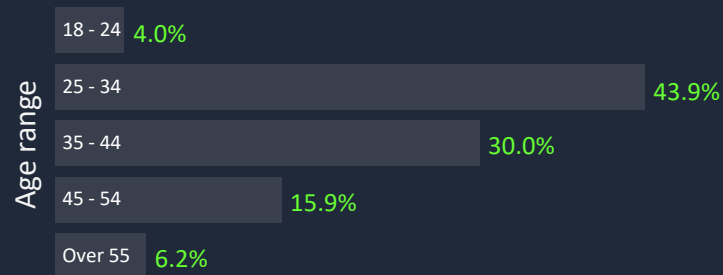# REPORT

Konzepthaus Design Study (KDS)

Konzepthaus Design Study (KDS)

The goal of the KDS is to create the most comprehensive, empirical overview of mobility design departments. The results are aimed to support global OEMs and suppliers alike to prepare their departments for the challenges of the coming years.

Process & Tools

The KDS #3 focuses on the research field of "Process & Tools" and is divided into three chapters – process, Product-Lifecycle-Management-Systems and software tools incl. software pipeline. The data was collected via an anonymous online survey and can be regarded as representative and resilient, because 457 persons participated. The focus of the survey and this report needs to be seen globally, as people from 27 different countries took part. In the following, the key findings are highlighted and have been evaluated by the experts at KIC.

Facts & Figures

85.1%   457 Participants   14.9%

Age range
- 18 - 24: 4.0%
- 25 - 34: 43.9%
- 35 - 44: 30.0%
- 45 - 54: 15.9%
- Over 55: 6.2%

Levels
- Junior: 23.0%
- Senior: 35.4%
- Manager: 16.7%
- Senior Manager: 17.8%
- VP & SVP: 7.1%

Chapter 1:

Process

Issues within the design process

☑ Design department ☑ Full time employee, temporary employment and freelancer ☑ Automotive manufacturer and supplier ☑ Worldwide

Top issue

Poor or slow management decisions

Lack of communication

Poorly defined roles & responsibilities

Collaborative working

Not the right equipment (hardware/software)

Least pressing issue

Moritz Hausel

„The design process has the ability to create clear differentiated advantages for a company. But to do this effectively, the corporate strategy must be communicated through the line to all managers and teams alike. The results of our survey show a concerning picture in management's ability to lead their teams, effectively communicate strategies, and provide clarity to people on their roles. This lack of soft skills points to a need for more personnel development, diversity and management training in general."

KIC

Digitalisation of the design process

Question: "Within your current company, can you identify how much of your design process is digitalised?"

☑ Design department   ☑ Full time employee, temporary employment and freelancer   ☑ Automotive manufacturer and supplier   ☑ Worldwide

Only a few areas are digitalised	Most areas are digitalised	Every area is digitalised
33.3%	57.1%	9.6%
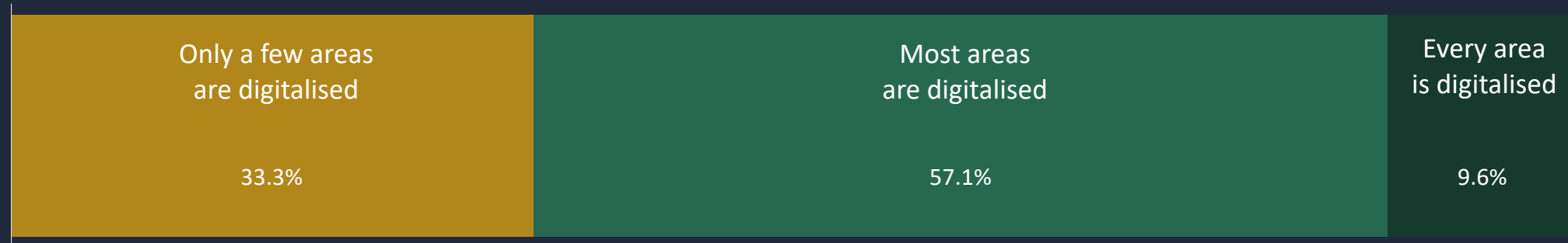
Moritz Hausel

„It is pleasing to see that two-thirds of study participants work with a high level of digitalisation in their roles. We anticipate an increase in this figure for the future due to the cost and time savings that digitalisation offers within the design process. Easier adaption loops, modifications that can be implemented faster and more accurately, are all possible benefits of digitalisation. However, we believe in a mix between digitalisation and the more classical approaches. For instance, employing physical modelling at a later stage. The right mixture can make the difference."
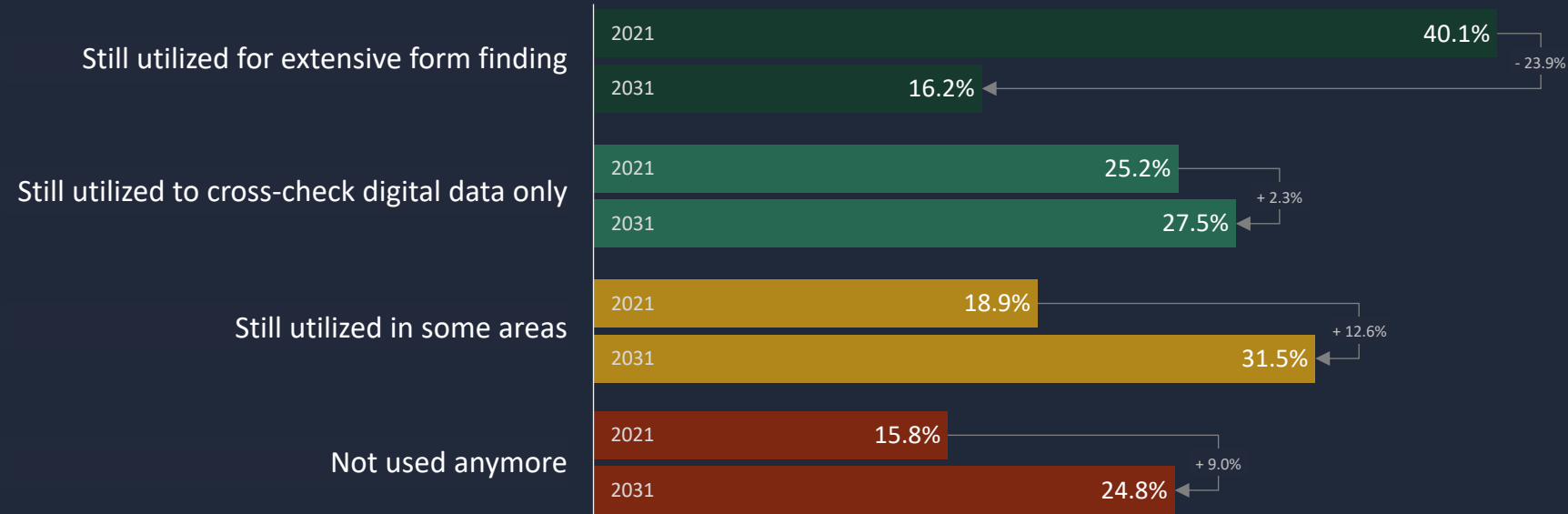
Role of clay models in 2021 and in 2031

Questions: "Please rate to what extent clay models play a role within your current company now and in ten years."

☑ Design department ☑ Full time employee, temporary employment and freelancer ☑ Automotive manufacturer and supplier ☑ Worldwide

Still utilized for extensive form finding
- 2021 — 40.1%
- 2031 — 16.2%
- − 23.9%

Still utilized to cross-check digital data only
- 2021 — 25.2%
- 2031 — 27.5%
- + 2.3%

Still utilized in some areas
- 2021 — 18.9%
- 2031 — 31.5%
- + 12.6%

Not used anymore
- 2021 — 15.8%
- 2031 — 24.8%
- + 9.0%

„The survey results confirm what we have already seen for two decades. Clay form-finding will reduce more and more. This trend will even accelerate. From our perspective, by 2031 it will only play a role in major design programs, but not in facelifts or derivatives anymore."

Oliver Vogt

Influence and utilization of artificial intelligence (AI) in the future[1]

☑ Design department   ☑ Full time employee, temporary employment and freelancer   ☑ Automotive manufacturer and supplier   ☑ Worldwide

AI will influence the work in design departments	AI will not influence the work in design departments
77.2%	22.8%

Utilization potential
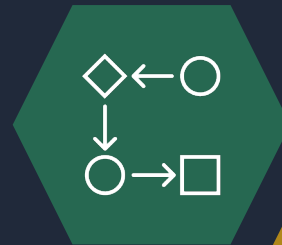
Process optimisation

Design content

Decision making

Oliver Vogt

„Considering the design process is only minimally supported by artificial intelligence, I think it's exciting to see that many of you assume it will influence the future of design. The exchange of ideas around this topic would certainly be very interesting."

Asaf Yaacobi

„Artificial intelligence and machine learning are already introduced within the design software automated tasks. As tools mature, the prediction is that they will influence process optimisation, benchmarking different scenarios, creating content using GAN libraries, and complex simulations."

Chapter 2:

Product-Lifecycle-Management-System

Usage of a Product-Lifecycle-Management-System (PLM)[1]

Question: "Does your company use a Product-Lifecycle-Management-System?"

☑ Design department ☑ Full time employee, temporary employment and freelancer ☑ Automotive manufacturer and supplier ☑ Worldwide

Yes, a PLM system is used	I do not know	No, a PLM system is not used
32.9%	37.4%	29.7%
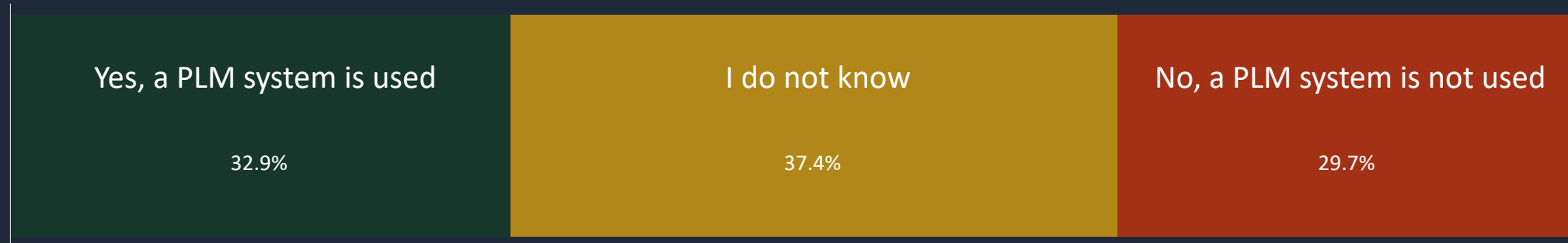
Florian Teufel

„For me, the result of this question has two standout aspects. First, I ask myself how OEMs or suppliers exchange information and data on complex projects without the support of a PLM system. The reason is that such systems contribute greatly to the distribution of information amongst key stakeholders in a targeted and up-to-date manner and that those responsible for the project can always obtain a current status. Secondly, more than one-third of those surveyed do not know whether a PLM system is in place. Potentially, this could be because they have no interaction points with the company PLM system due to their task description."

Satisfaction when working with Product-Lifecycle-Management-Systems[1]

Question: "If you are directly working with the Product-Lifecycle-Management-System within your current company, please rate your satisfaction?"

☑ Design department   ☑ Full time employee, temporary employment and freelancer   ☑ Automotive manufacturer and supplier   ☑ Worldwide

4.4%	25.0%	57.4%	8.8%	4.4%

| Very satisfied | Satisfied | Neither/nor | Unsatisfied | Very unsatisfied |
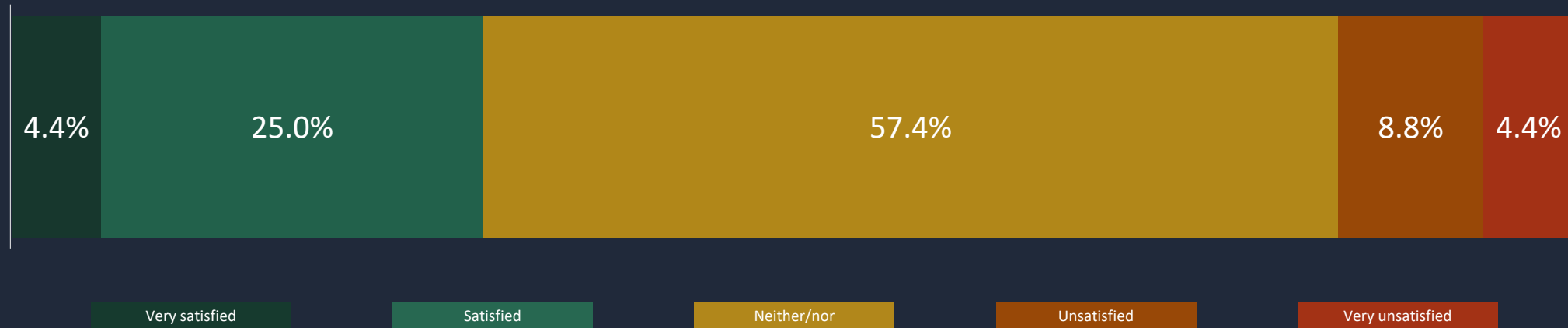
Florian Teufel

„Over half of our participants do not show a clear preference in satisfaction when working with their PLM system.

A system specified by the company should not only serve the pure purpose of fulfilling the company needs but should also offer the users the necessary ease of use, range of functions, customisability and so on, so that the system is used with satisfaction."

(1) A software tool to save and publish data over the complete lifecycle to make them available for other users. The PLM system should be the only reference if people need correct project data.

Chapter 3:

Software Tools

Use of software tools and willingness to learn new tools

Questions: "Which software tools do you use? For the software tools you selected, how often do you work with these?
Of those tools you have not used, which do you feel could be useful to your role or would you like to learn?"

☑ Design department ☑ Full time employee, temporary employment and freelancer ☑ Automotive manufacturer and supplier ☑ Worldwide

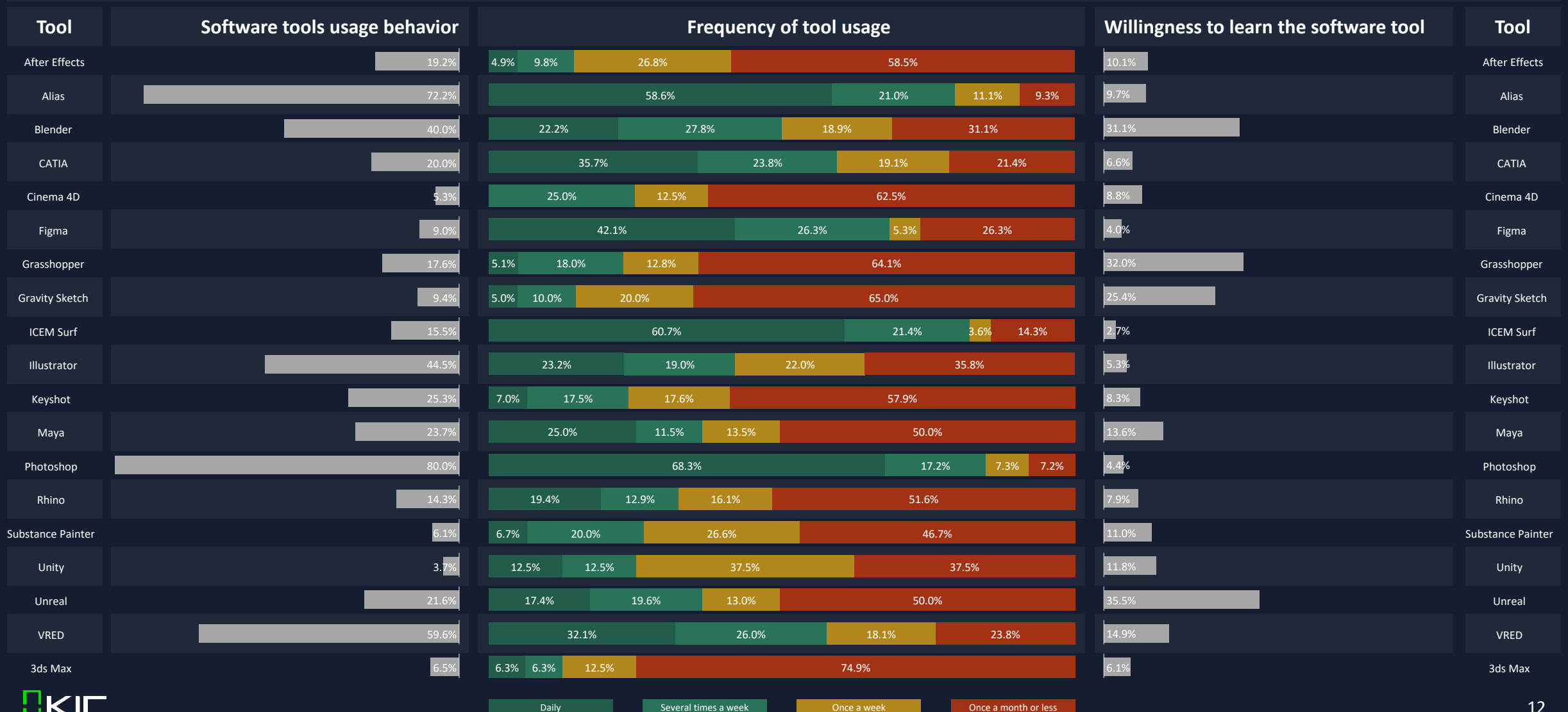| Tool	Software tools usage behavior	Frequency of tool usage				Willingness to learn the software tool	Tool
		Daily	Several times a week	Once a week	Once a month or less		
After Effects	19.2%	4.9%	9.8%	26.8%	58.5%	10.1%	After Effects
Alias	72.2%	58.6%	21.0%	11.1%	9.3%	9.7%	Alias
Blender	40.0%	22.2%	27.8%	18.9%	31.1%	31.1%	Blender
CATIA	20.0%	35.7%	23.8%	19.1%	21.4%	6.6%	CATIA
Cinema 4D	5.3%	25.0%		12.5%	62.5%	8.8%	Cinema 4D
Figma	9.0%	42.1%	26.3%	5.3%	26.3%	4.0%	Figma
Grasshopper	17.6%	5.1%	18.0%	12.8%	64.1%	32.0%	Grasshopper
Gravity Sketch	9.4%	5.0%	10.0%	20.0%	65.0%	25.4%	Gravity Sketch
ICEM Surf	15.5%	60.7%	21.4%	3.6%	14.3%	2.7%	ICEM Surf
Illustrator	44.5%	23.2%	19.0%	22.0%	35.8%	5.3%	Illustrator
Keyshot	25.3%	7.0%	17.5%	17.6%	57.9%	8.3%	Keyshot
Maya	23.7%	25.0%	11.5%	13.5%	50.0%	13.6%	Maya
Photoshop	80.0%	68.3%	17.2%	7.3%	7.2%	4.4%	Photoshop
Rhino	14.3%	19.4%	12.9%	16.1%	51.6%	7.9%	Rhino
Substance Painter	6.1%	6.7%	20.0%	26.6%	46.7%	11.0%	Substance Painter
Unity	3.7%	12.5%	12.5%	37.5%	37.5%	11.8%	Unity
Unreal	21.6%	17.4%	19.6%	13.0%	50.0%	35.5%	Unreal
VRED	59.6%	32.1%	26.0%	18.1%	23.8%	14.9%	VRED
3ds Max	6.5%	6.3%	6.3%	12.5%	74.9%	6.1%	3ds Max

Legend: ■ Daily ■ Several times a week ■ Once a week ■ Once a month or less

Use of software tools and willingness to learn new tools

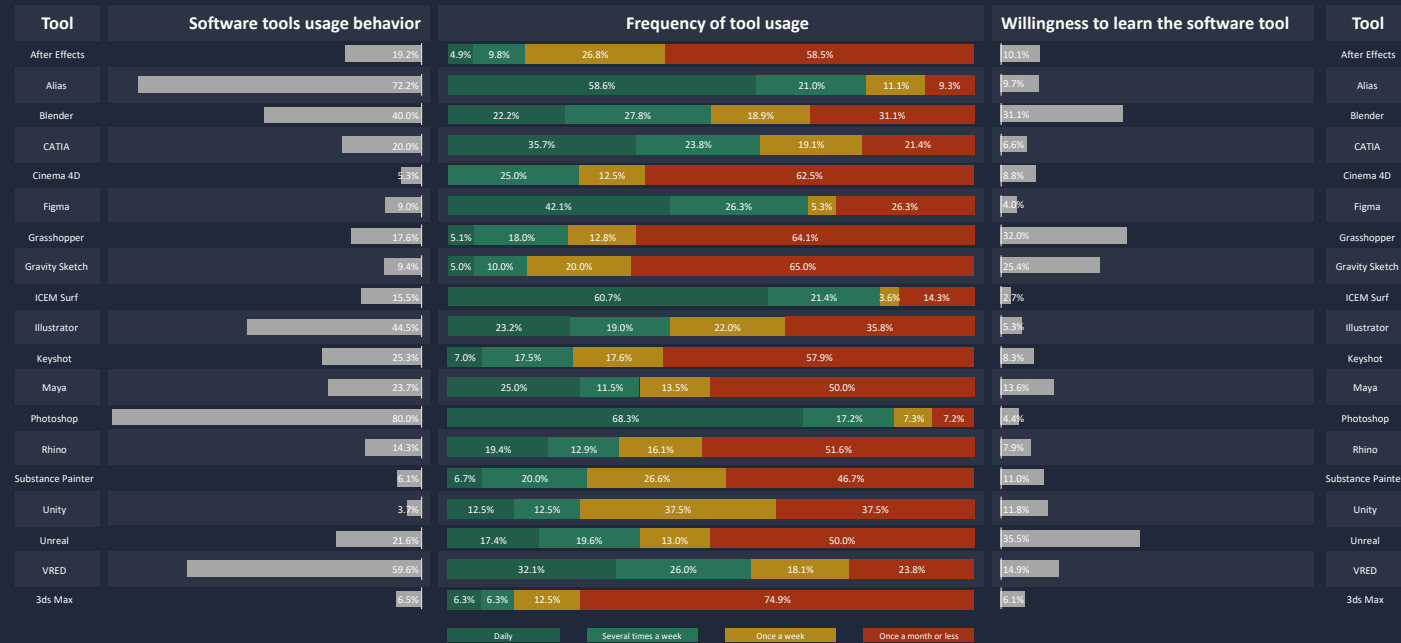☑ Design department ☑ Full time employee, temporary employment and freelancer ☑ Automotive manufacturer and supplier ☑ Worldwide

Tool	Software tools usage behavior	Frequency of tool usage				Willingness to learn the software tool	Tool
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Blender	40.0%	22.2%	27.8%	18.9%	31.1%	31.1%	Blender
CATIA	20.0%	35.7%	23.8%	19.1%	21.4%	6.6%	CATIA
Cinema 4D	5.3%	25.0%	12.5%		62.5%	8.8%	Cinema 4D
Figma	9.0%	42.1%	26.3%	5.3%	26.3%	4.0%	Figma
Grasshopper	17.6%	5.1% / 18.0%	12.8%		64.1%	32.0%	Grasshopper
Gravity Sketch	9.4%	5.0% / 10.0%	20.0%		65.0%	25.4%	Gravity Sketch
ICEM Surf	15.5%	60.7%	21.4%	3.6%	14.3%	2.7%	ICEM Surf
Illustrator	44.5%	23.2%	19.0%	22.0%	35.8%	5.3%	Illustrator
Keyshot	25.3%	7.0%	17.5%	17.6%	57.9%	8.3%	Keyshot
Maya	23.7%	25.0%	11.5%	13.5%	50.0%	13.6%	Maya
Photoshop	80.0%	68.3%	17.2%	7.3%	7.2%	4.4%	Photoshop
Rhino	14.3%	19.4%	12.9%	16.1%	51.6%	7.9%	Rhino
Substance Painter	6.1%	6.7%	20.0%	26.6%	46.7%	11.0%	Substance Painter
Unity	3.7%	12.5%	12.5%	37.5%	37.5%	11.8%	Unity
Unreal	21.6%	17.4%	19.6%	13.0%	50.0%	35.5%	Unreal
VRED	59.6%	32.1%	26.0%	18.1%	23.8%	14.9%	VRED
3ds Max	6.5%	6.3% / 6.3%	12.5%		74.9%	6.1%	3ds Max

■ Daily ■ Several times a week ■ Once a week ■ Once a month or less

Asaf Yaacobi

„Within the automotive industry, complicated tasks and the search for easy yet powerful solutions are increasing the demand for software pipelines solutions. However, the cost/usage ratio becomes a key factor when introducing a new tool to the design process. In the given chart, we can investigate the cost/usage ratio of some of the most common tools in the automotive design process. Since some of the tools have a hefty cost, it is very beneficial for design management to overlook the usage behavior, as part of the decision-making for new tools, as good as they can be. We can also observe two general profiles. Specialized expert, using a certain tool for most of the task carried out, with a good cost/usage ratio. On the other hand, we have generalists, who can designate tasks using different software, with variable cost/usage ratio."
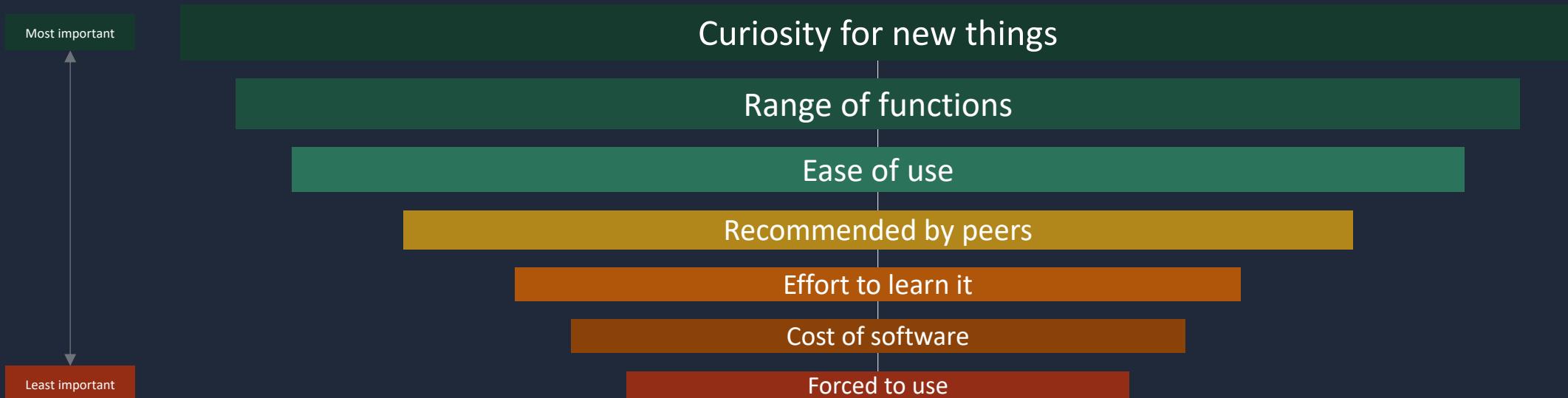
Reasons for new software tools

Question: "Please indicate the basis for why you choose to try new software tools. Please rank the following reasons for trialling new software tools from most important to unimportant."

☑ Design department ☑ Full time employee, temporary employment and freelancer ☑ Automotive manufacturer and supplier ☑ Worldwide

Most important

Curiosity for new things

Range of functions

Ease of use

Recommended by peers

Effort to learn it

Cost of software

Forced to use

Least important

Martin Groschwald

„As curiosity lies at the heart of every creative person, it doesn't come as a surprise that trying out new tools comes out on top.

What is most important to read from this chart is that as long as the software improves what can be done or makes day-to-day activities easier, creatives will react positively to it. Communication is key here as we see that the effort to learn it or even forced training is not the highest concern – making sure it is useable and useful is how to gain buy-in from people."

KIC

Supportiveness of the IT department

Question: "For your current company please indicate how supportive your IT department is in working with the design department."
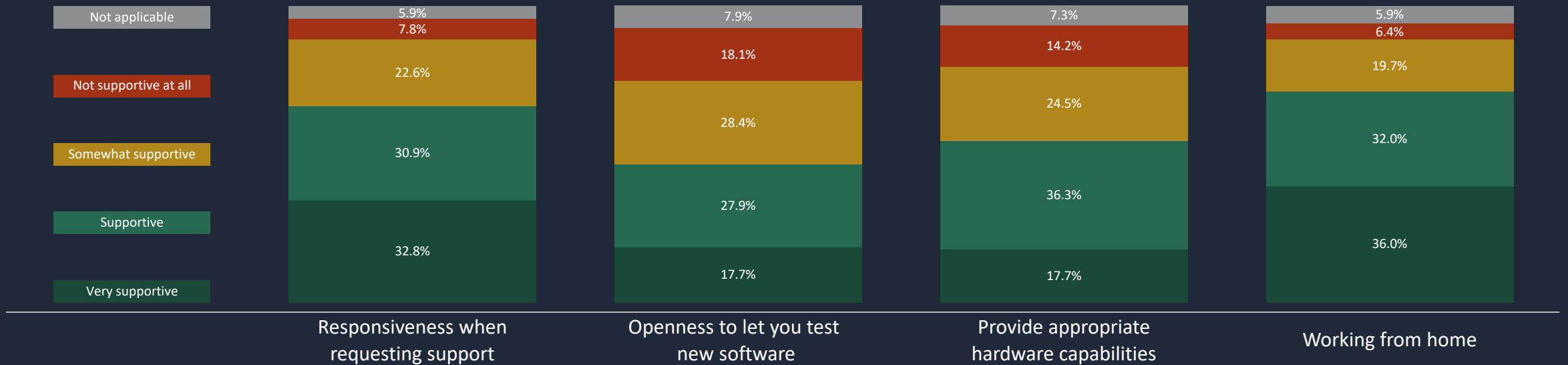
☑ Design department ☑ Design manager ☑ Full time employee, temporary employment and freelancer ☑ Automotive manufacturer and supplier ☑ Worldwide

	Responsiveness when requesting support	Openness to let you test new software	Provide appropriate hardware capabilities	Working from home
Not applicable	5.9%	7.9%	7.3%	5.9%
Not supportive at all	7.8%	18.1%	14.2%	6.4%
Somewhat supportive	22.6%	28.4%	24.5%	19.7%
Supportive	30.9%	27.9%	36.3%	32.0%
Very supportive	32.8%	17.7%	17.7%	36.0%

Martin Groschwald

„The biggest surprise to me from these results is the openness to test new software. Based on experience with our partners, this has traditionally been a tricky discussion. The opening up of this and new software implementation becoming more widely supported is a great step in the right direction."

KIC

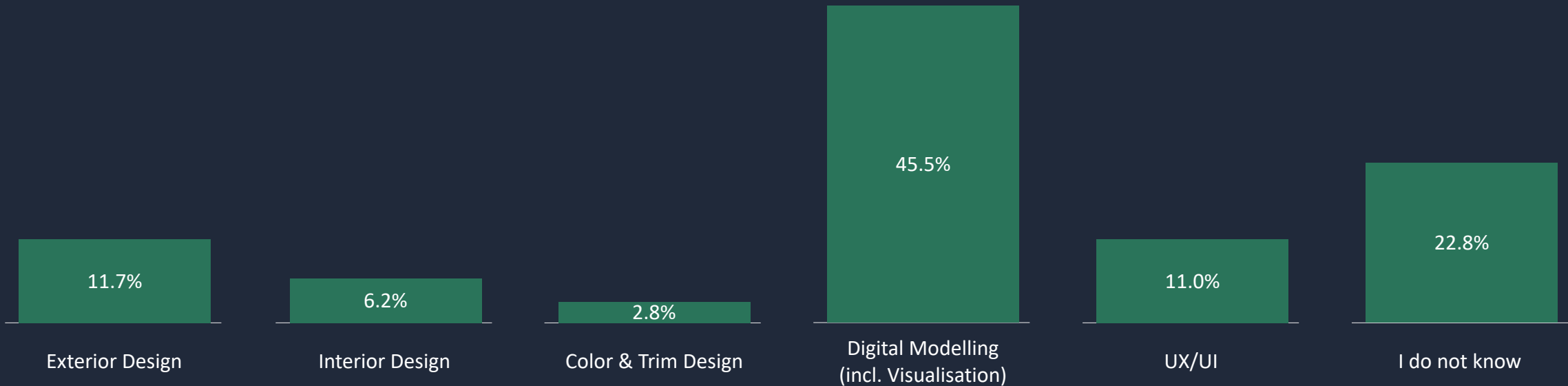# Strongest software pipeline within the design departments[1]

☑ Design department ☑ Full time employee, temporary employment and freelancer ☑ Automotive manufacturer and supplier ☑ Worldwide

11.7%	6.2%	2.8%	45.5%	11.0%	22.8%
Exterior Design	Interior Design	Color & Trim Design	Digital Modelling (incl. Visualisation)	UX/UI	I do not know

Oliver Vogt

„It was clear that the Digital Modelling and Visualisation departments are role models and would receive the highest share in this area. It should be noted that other creative departments can give a push to the software pipeline through initial sketches on paper that need to be digitised. Designers who can juggle that, taking advantage of this will be more successful."

(1) Understanding of "software pipeline" in further context: creating work results by using different software tools in a specific order. This way of working is common for all involved colleagues, it is supposed to be robust and optimised. [Example: Photoshop > Alias > VRED]

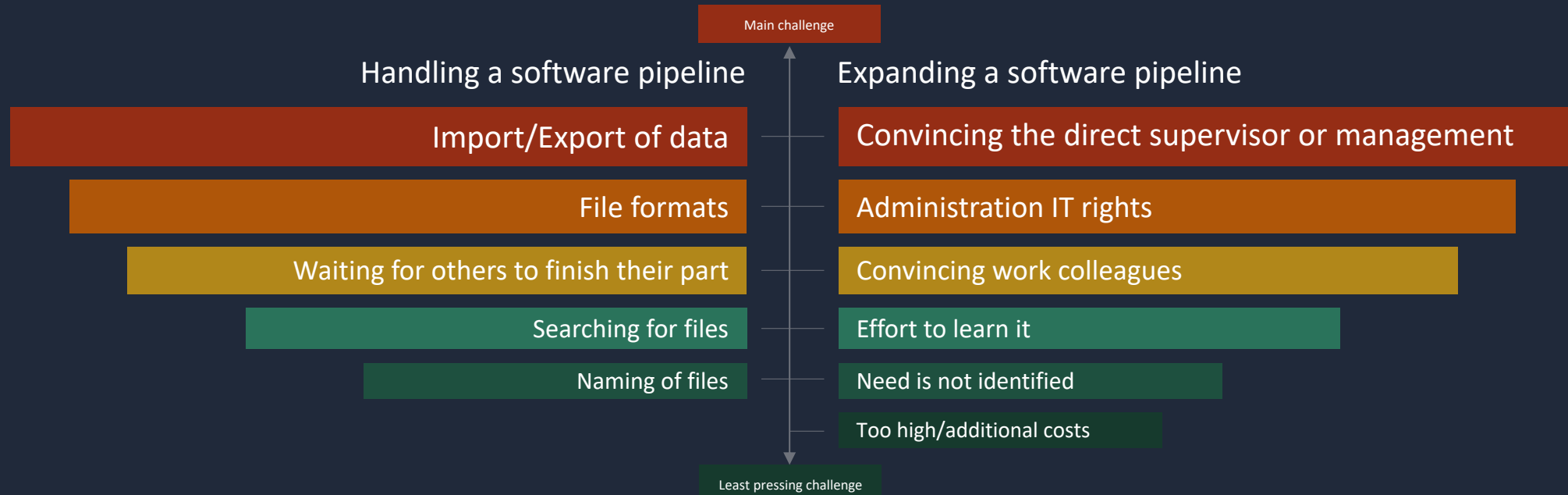# Challenges in handling and expanding a software pipeline[1]

Questions: "Please choose from the list the main challenges you face when working within a software pipeline.
What do you see as some of the challenges in expanding a software pipeline?"

☑ Design department   ☑ Full time employee, temporary employment and freelancer   ☑ Automotive manufacturer and supplier   ☑ Worldwide

Main challenge

Handling a software pipeline

| Expanding a software pipeline

Import/Export of data | Convincing the direct supervisor or management

File formats | Administration IT rights

Waiting for others to finish their part | Convincing work colleagues

Searching for files | Effort to learn it

Naming of files | Need is not identified

Too high/additional costs

Least pressing challenge

Oliver Vogt

„This result is not surprising with the hassle of moving data between software. Big software houses try to keep their customers as long as possible and make it difficult to leave their ecosystem by, for example, demanding high fees for import/export interfaces. The reason why management is reluctant to expand software pipelines might be that they expect to lose control of the output and system stability."

(1) Understanding of "software pipeline" in further context: creating work results by using different software tools in a specific order. This way of working is common for all involved colleagues, it is supposed to be robust and optimised. [Example: Photoshop > Alias > VRED]

Training or induction on the software pipeline when starting the job

Question: "What level of training or induction were you given on the software pipeline when starting your job within your current company?"

☑ Design department   ☑ Full time employee, temporary employment and freelancer   ☑ Automotive manufacturer and supplier   ☑ Worldwide

I was trained or briefed	I had previous experience	I had no training or briefing
11.0%	36.3%	52.7%

Asaf Yaacobi

„Our results show an alarming and staggering figure of over 50% claim they are plunged into a pipeline without any proper guidance when onboarded. It is irresponsible to the design process; the personal frustration that results from learning a complex workflow on the go can lead to a waste of resources and poor outcomes for a prolonged period."

The Konzepthaus Design Study

Review 2021

Employment Statistics & Development

Chapters:
- Salary
  - Creative work
    - Personal training

Organisation & Leadership

Chapters:
- Design organisation
- Leadership
- Design managers

Process & Tools

Chapters:
- Process
- Product-Lifecycle-Management-System
- Software tools incl. Software pipeline

Click me to see all

Preview 2022

Employment Statistics & Development

Annual Report (March 2022)