Concept Design

Survey brought to you by PTC

Learn about the latest trends in concept design

Respondent's role in concept design:

47%

The creator

30%

The influencer

6%

The executive

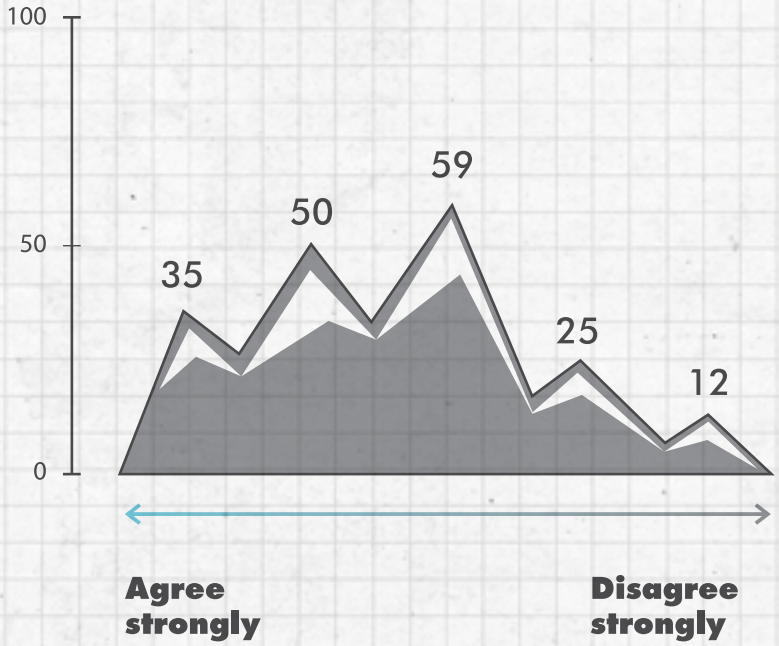
5%

The manager

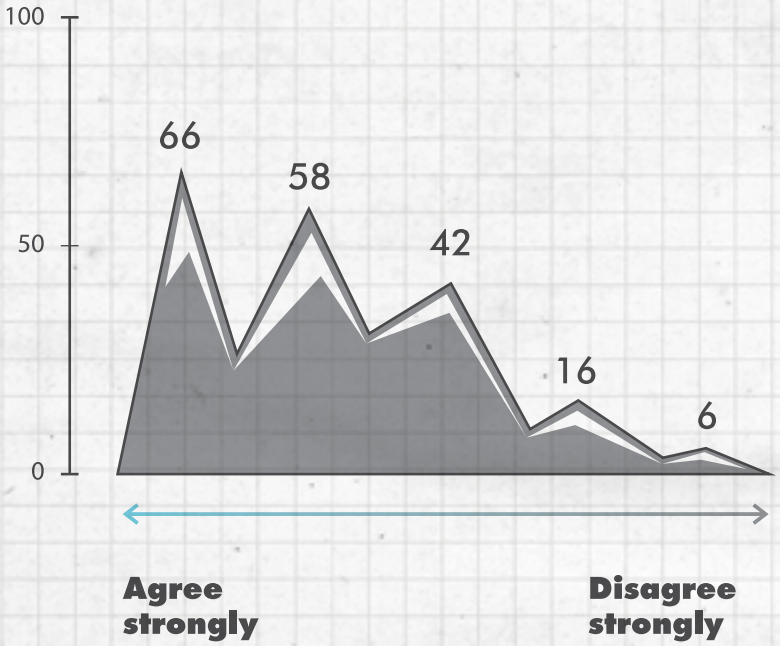
Source: Trends in Concept Design, PTC study, July 2011 - http://www.ptc.com/go/concept-design

Describe your concept design process:

Our process is industry leading



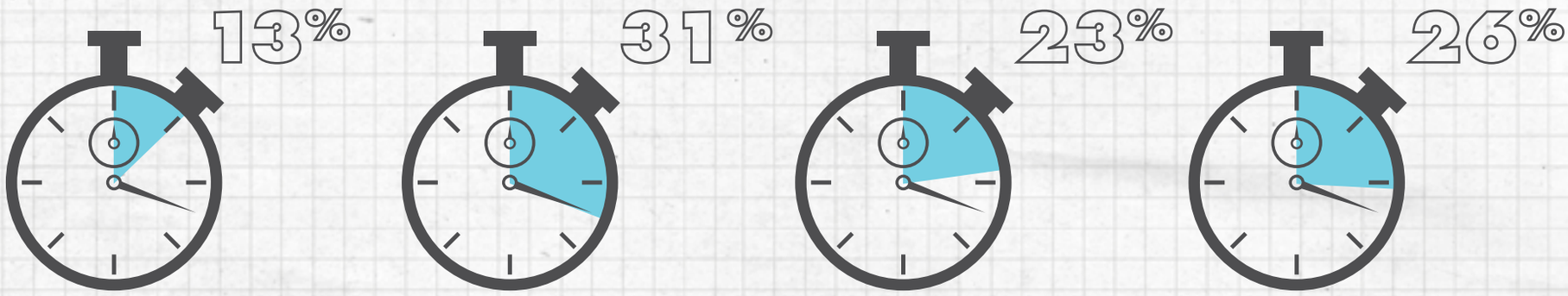
Our process leads to innovative products



Source: Trends in Concept Design, PTC study, July 2011 - http://www.ptc.com/go/concept-design

Costs and Concept Design

The average percent of time spent on concept design when compared to the total time required to design, develop, and manufacture a product:



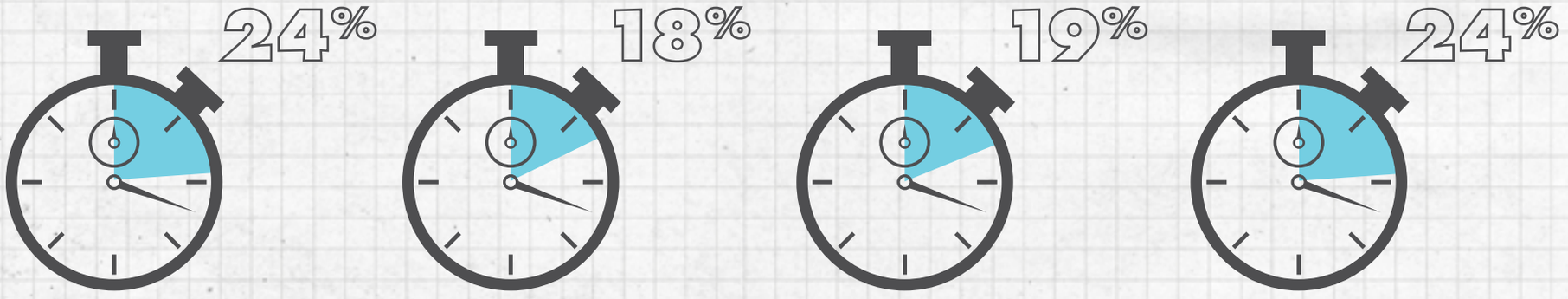
Spend less than 10% of total time

11-20%

21-30%

31% or more

By the time the concept design is complete, the fixed percent of total product cost is:



Less than 60% of cost is fixed

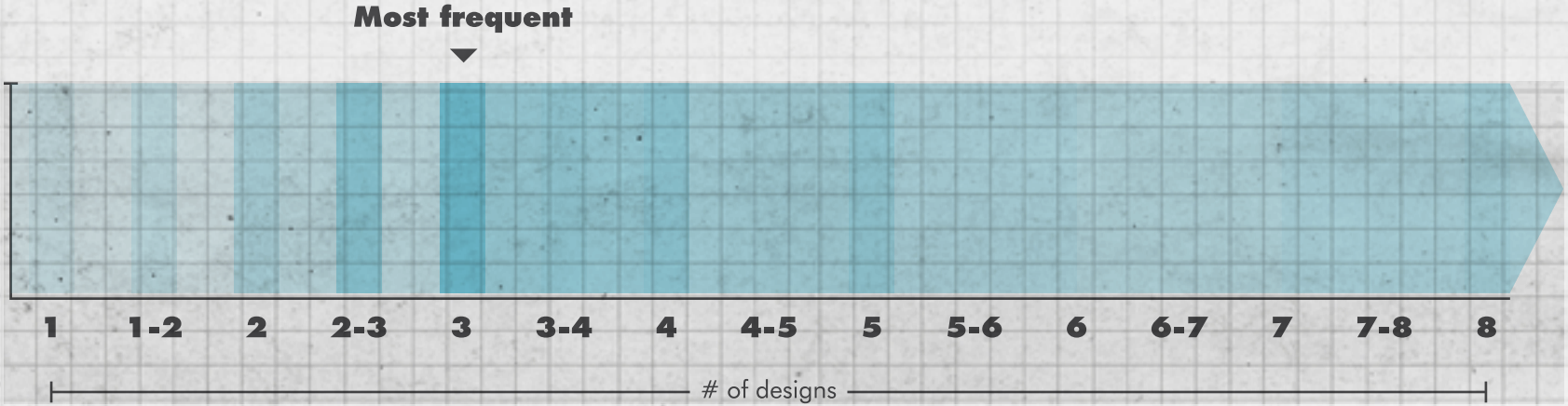
61-70%

71-80%

81% or more

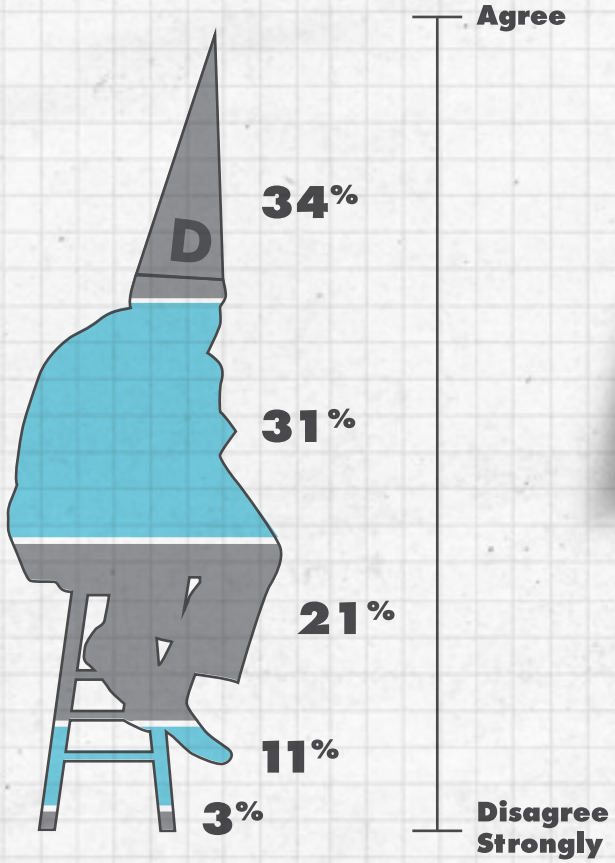
Source: Trends in Concept Design, PTC study, July 2011 - http://www.ptc.com/go/concept-design

Average number of design alternatives explored during the concept design stage when developing new products:



Source: Trends in Concept Design, PTC study, July 2011 - http://www.ptc.com/go/concept-design

"If you don't start with a good concept, your product FAILS

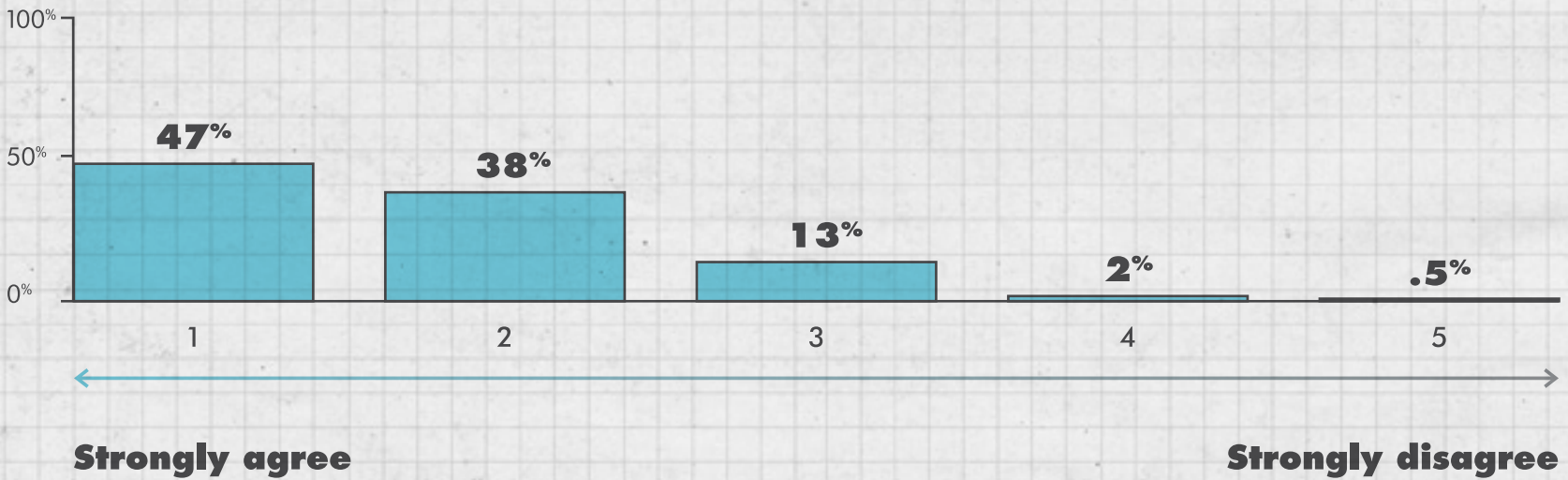


Score card your plan at:
ptc.com/go/concept-design

...and that leads to lost market share, dissatisfied customers, squandered resources, and wasted time."

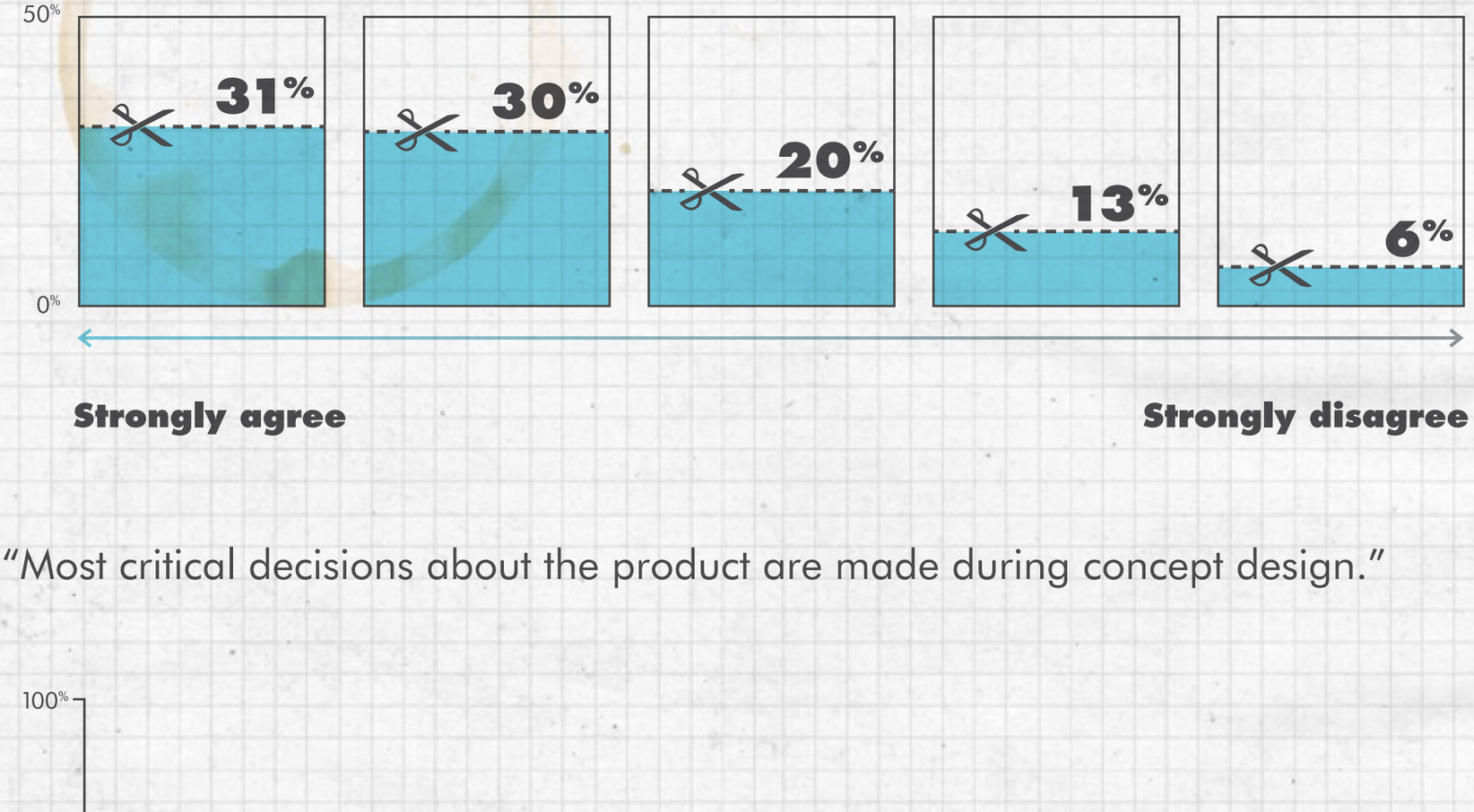
Source: Trends in Concept Design, PTC study, July 2011 - http://www.ptc.com/go/concept-design

"To be successful you need innovation in new products, and that requires good concept design."

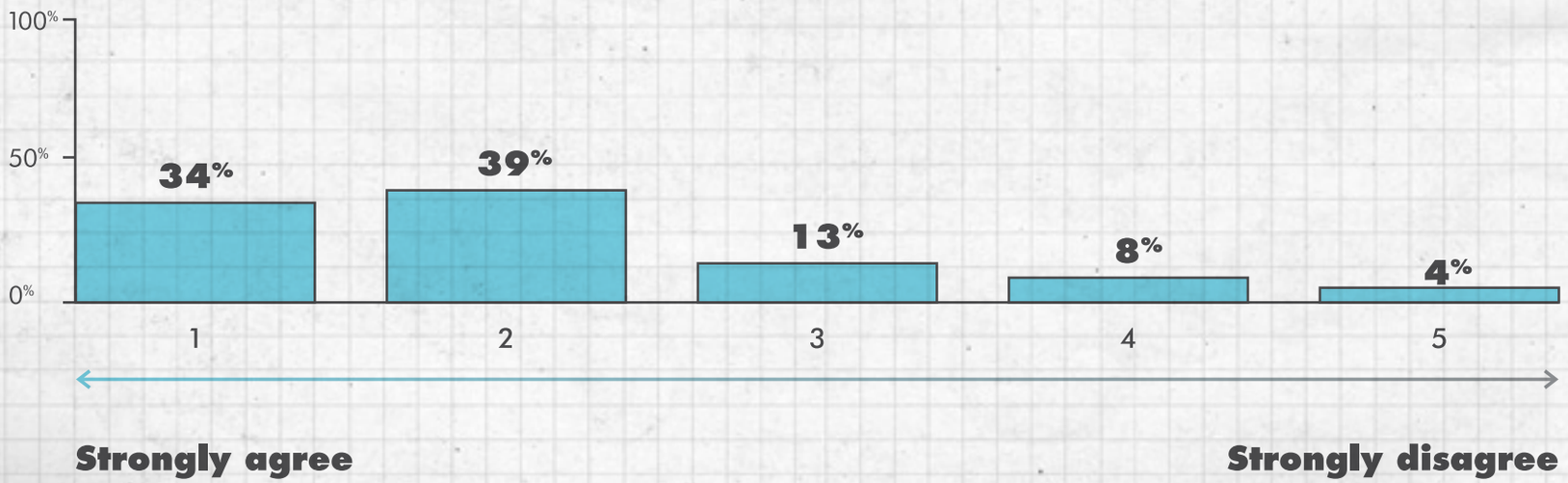


Source: Trends in Concept Design, PTC study, July 2011 - http://www.ptc.com/go/concept-design

"The concept design process is often cut short due to schedule."



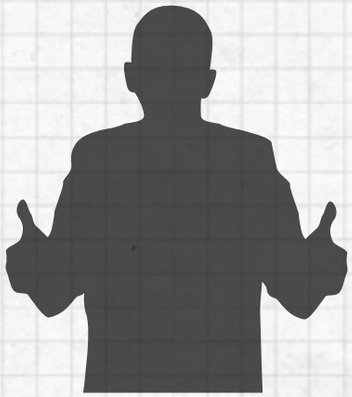
"Most critical decisions about the product are made during concept design."



Source: Trends in Concept Design, PTC study, July 2011 - http://www.ptc.com/go/concept-design

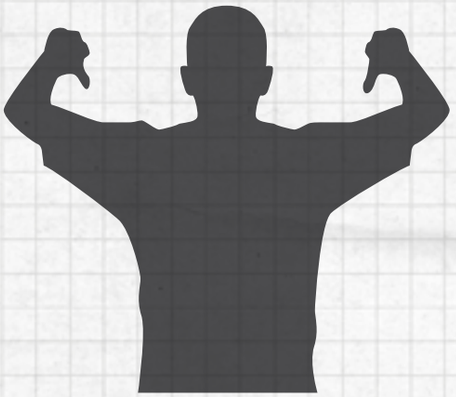
Agree or Disagree

"We would benefit immensely by reducing the time spent on concept design."



56%

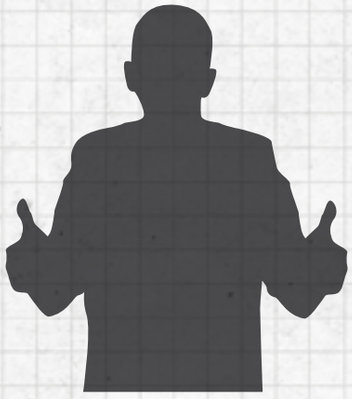
Agree



44%

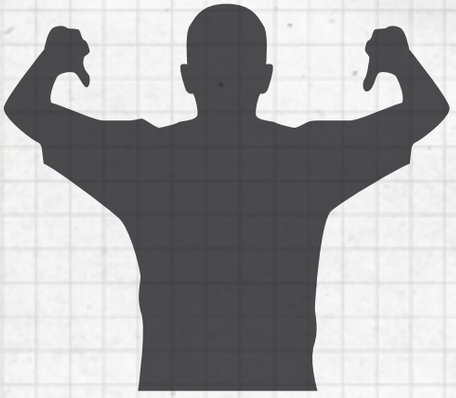
Disagree

"We would benefit immensely by exploring more design alternatives during concept design."



92%

Agree



8%

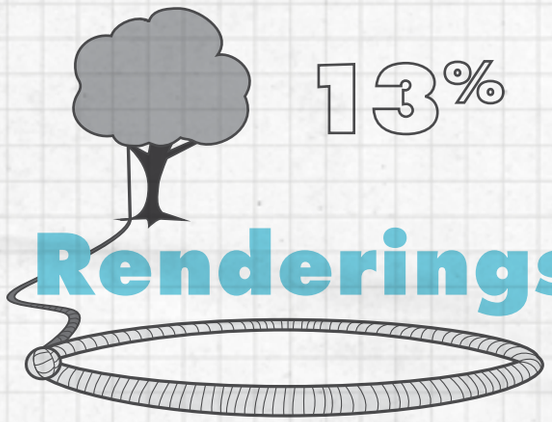
Disagree

Source: Trends in Concept Design, PTC study, July 2011 - http://www.ptc.com/go/concept-design

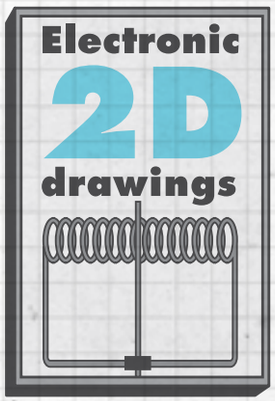
Tools and Processes in Concept Design

Within your company, concept designs and ideas are captured by:

Engineering notebooks 13%

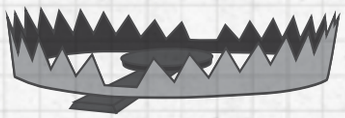


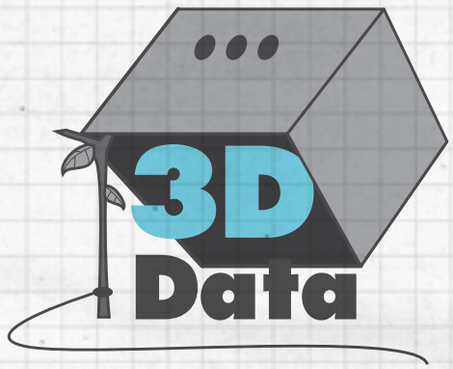
13% **Renderings**



11%

Hand-drawn sketches 21%



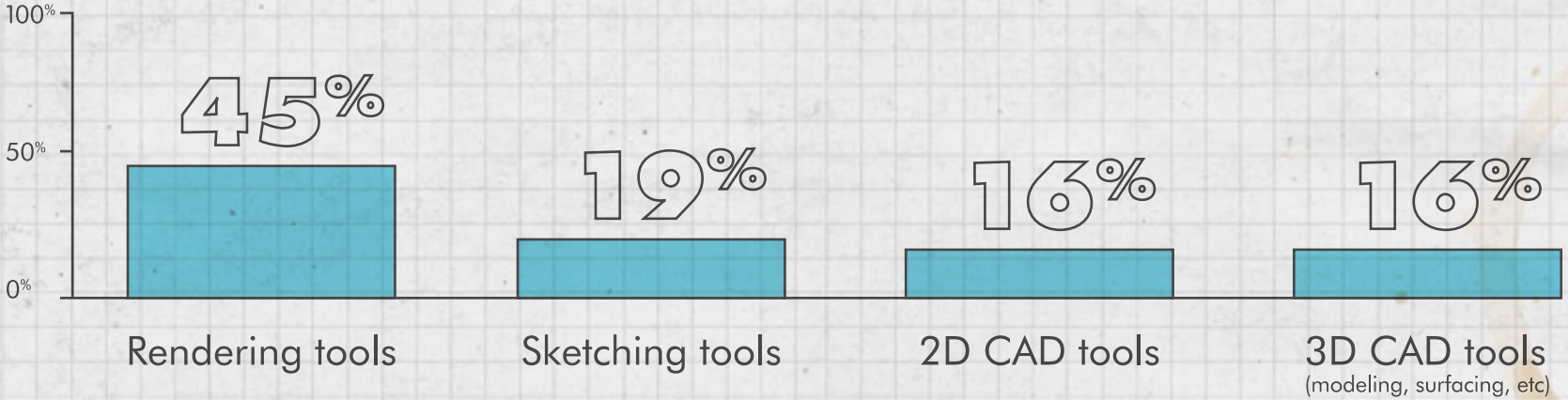


27%

34% **Paper vs. Electronic** 51%

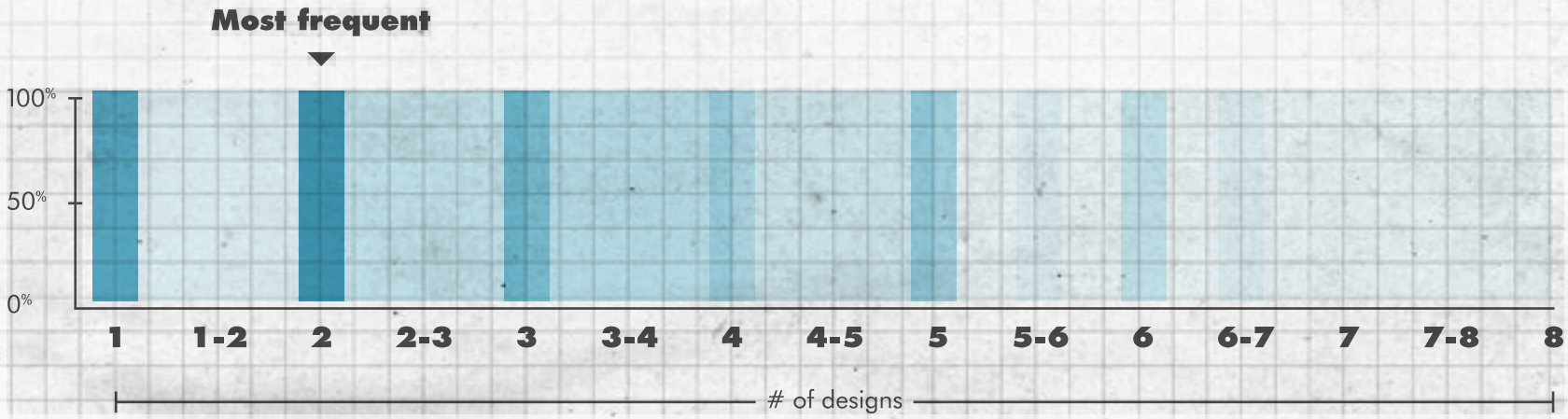
Source: Trends in Concept Design, PTC study, July 2011 - http://www.ptc.com/go/concept-design

Types of software tools used during concept design:

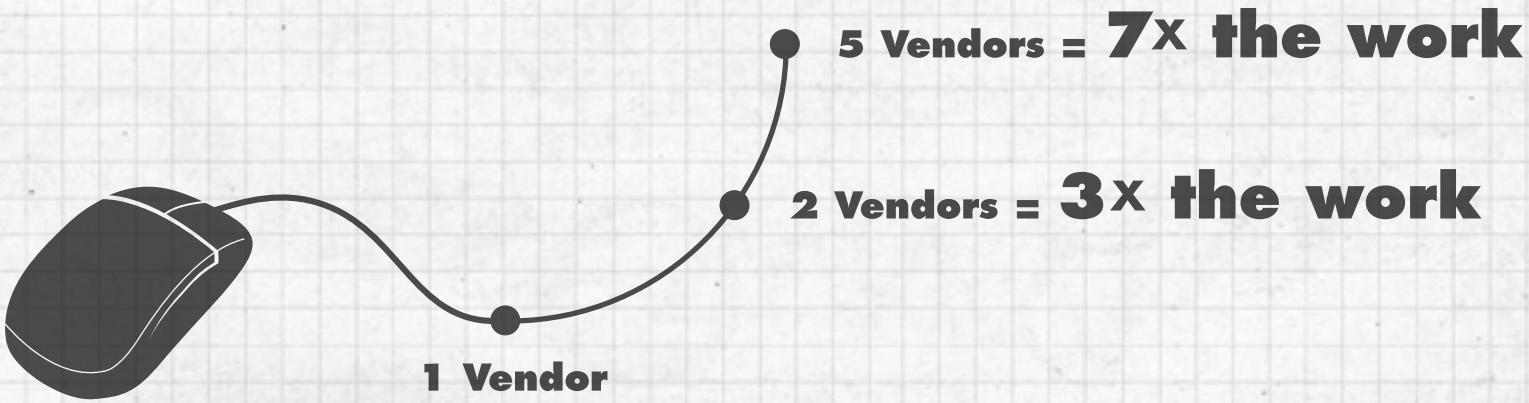


Source: Trends in Concept Design, PTC study, July 2011 - http://www.ptc.com/go/concept-design

Number of design software applications used during concept design:



When multiple vendors provide the design software used for concept design development, extra work is required to recreate designs:



Source: Trends in Concept Design, PTC study, July 2011 - http://www.ptc.com/go/concept-design

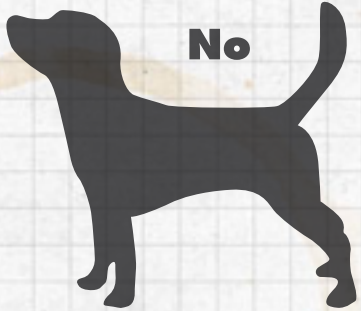
Percent of respondents who sometimes need to recreate design data during the concept design stage because their design tool formats

are not compatible:

Yes

Grrrrrrrrrrr!

No

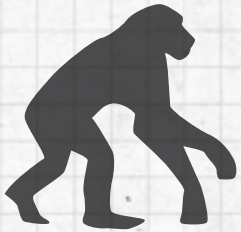


59%

31%

Source: Trends in Concept Design, PTC study, July 2011 - http://www.ptc.com/go/concept-design

Manner in which concept designs **typically evolve** in your company:

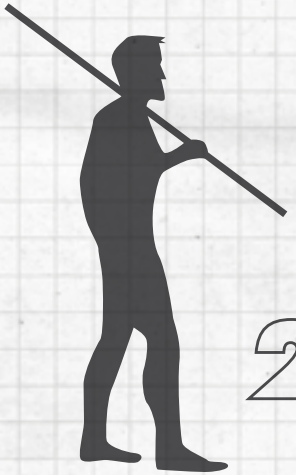


29%

From scratch

45%

By partially leveraging existing designs



23%

By heavily leveraging existing designs

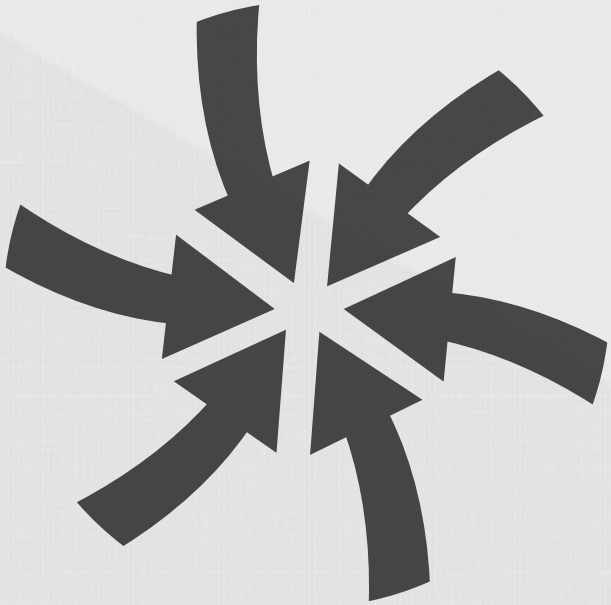
Source: Trends in Concept Design, PTC study, July 2011 - http://www.ptc.com/go/concept-design

Managing Concept Design

Each person stores concept designs on a desktop

22%

We have centralized management of some concept designs (e.g., the ones we release to engineering)



37%

We strictly manage all concept designs, including all revisions, in a centralized, process-driven way

34%

Source: Trends in Concept Design, PTC study, July 2011
http://www.ptc.com/go/concept-design

Percent of respondents who agree or disagree with the following statement:

> “Concept design at my company is typically burdened with competing agendas: Product development teams, short on time, want only a few alternatives so they can thoroughly ensure that a concept meets requirements. On the other hand, limiting alternatives also limits exploration, insight, and innovation.”

79%

Strongly agree

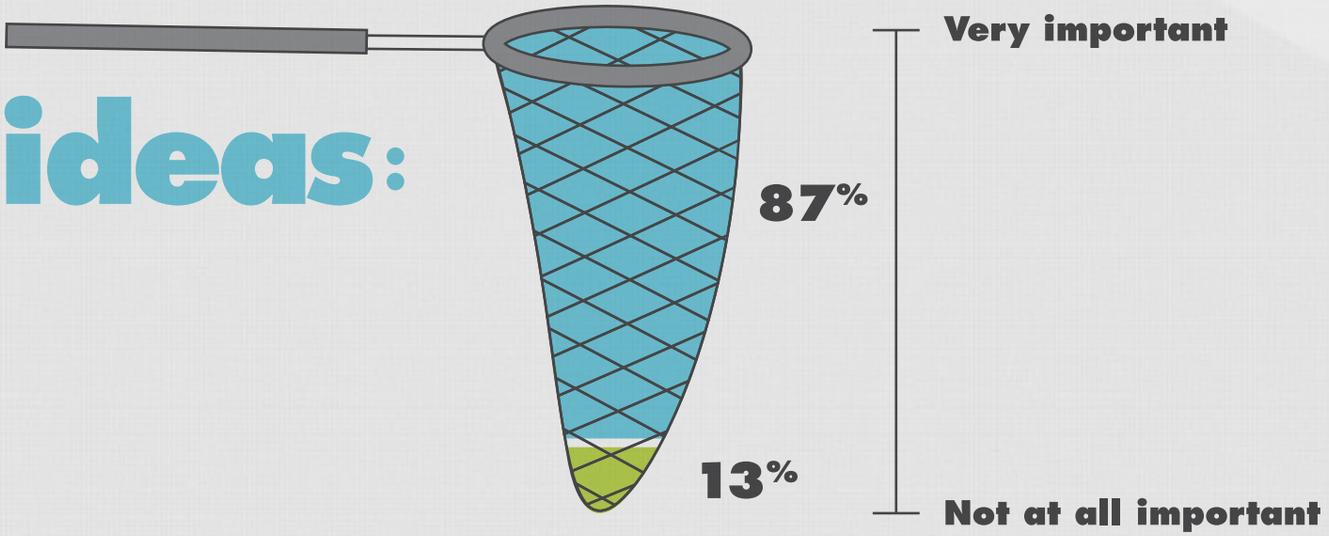
21%

Strongly disagree

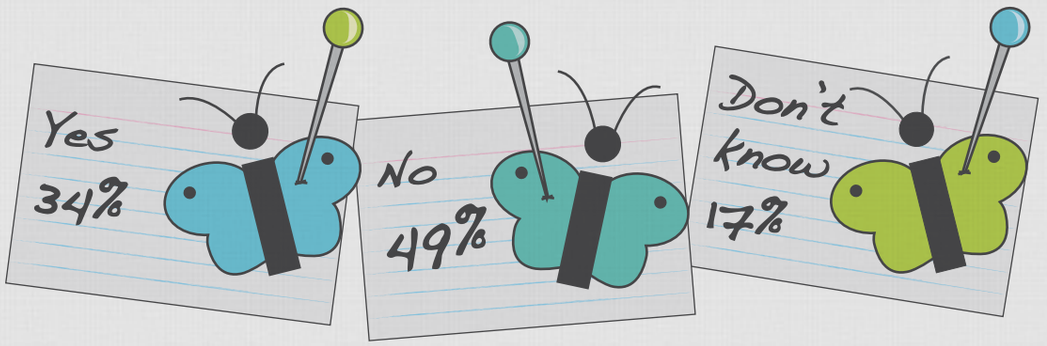
Source: Trends in Concept Design, PTC study, July 2011
http://www.ptc.com/go/concept-design

Capturing Successful and Unsuccessful Ideas

Importance of capturing unsuccessful ideas:

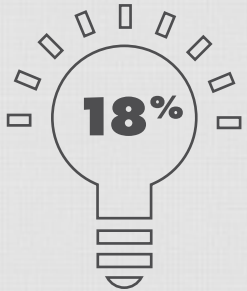


Percent of respondents who centralize and manage unsuccessful ideas:



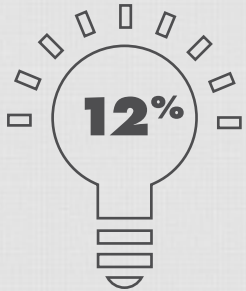
Source: Trends in Concept Design, PTC study, July 2011
http://www.ptc.com/go/concept-design

Ease with which you could review ideas and concepts explored by a previous project team:



Very easy

Possible, but not easy



Impossible

Source: Trends in Concept Design, PTC study, July 2011
http://www.ptc.com/go/concept-design

Engineering Notebooks

Percent of team members using engineering notebooks during concept design:

YES 66%

NO 23%

According to respondents, ownership of information in an engineering notebook belongs to:

60%

The company

19%

The individual

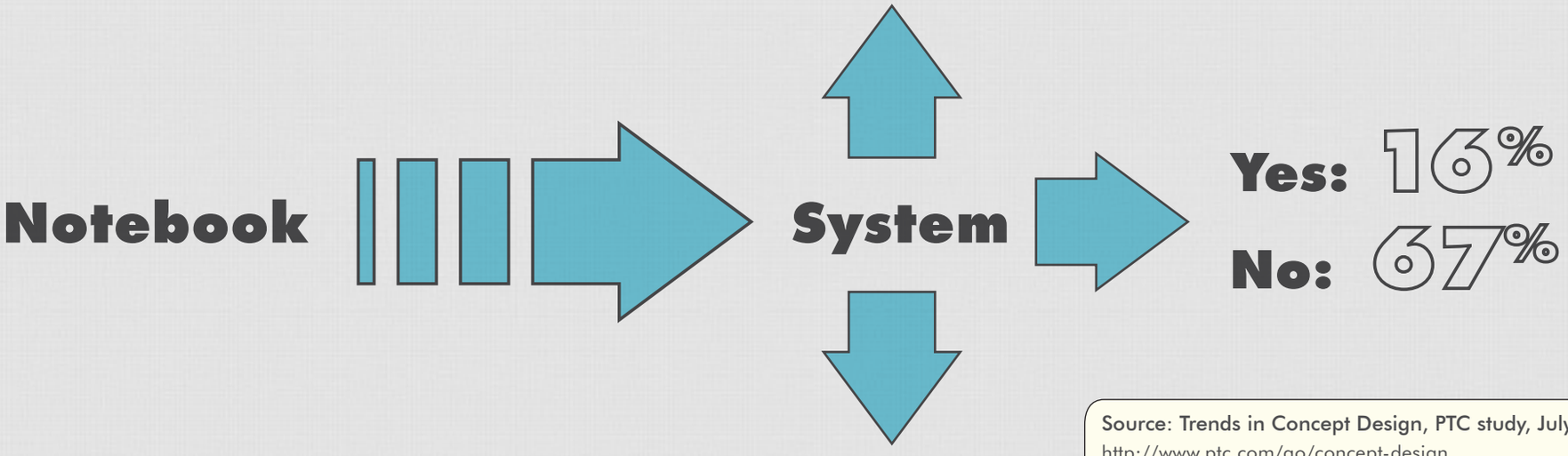
21%

Not sure

Source: Trends in Concept Design, PTC study, July 2011
http://www.ptc.com/go/concept-design

Percent of respondents who believe individuals leaving the company would take their engineering notebook with them:

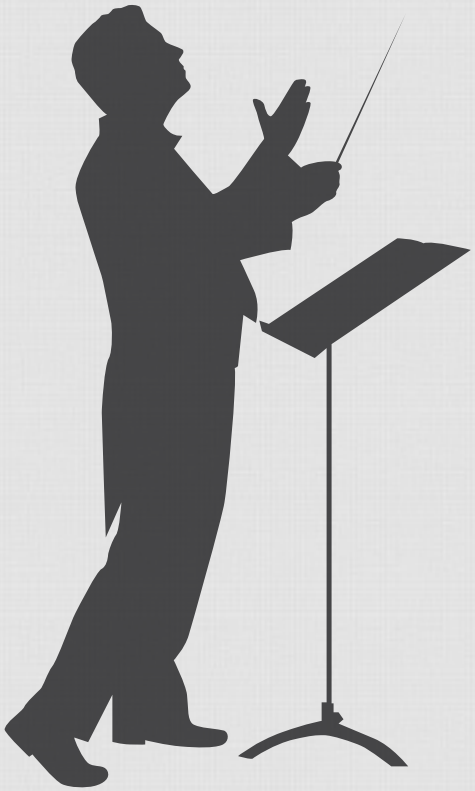
Percent of respondents who believe all information captured in engineering notebooks is captured in their company's systems:



Source: Trends in Concept Design, PTC study, July 2011
http://www.ptc.com/go/concept-design

Adopting Multiple Tools for Concept Design

The policies and guidelines for your company's approach to software tools used during the concept design stage are:



18% **Very well managed.** Everyone agrees on what recommended tools should be used at what stage.

29% **Mostly managed.** We have a clear set of supported tools used by everyone in the organization but there is no universal agreement on what tools should be used when.

24% **Somewhat managed.** We have mostly standard tools and some agreement on what tools to use when. There are some "rogue" tools.

15% **Mostly unmanaged.** There are one to three recommended tools, but little agreement on what tools to use when. There are some "rogue" tools that duplicate capabilities.

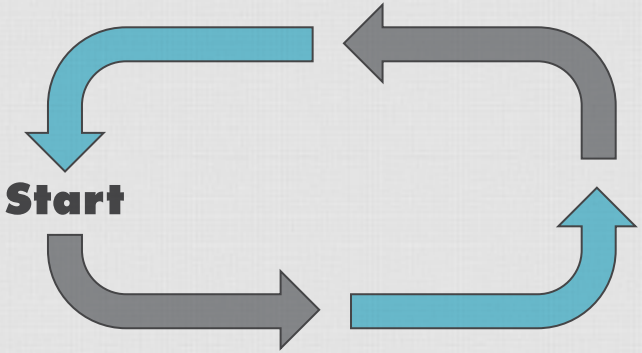
14% **Not at all managed.** It's a free-for-all. There is no clear set of recommended tools and no agreement on what tools to use when. Many tools duplicate capabilities.

Source: Trends in Concept Design, PTC study, July 2011
http://www.ptc.com/go/concept-design

Collaboration and the Rest of Engineering

Percent of respondents who believe concept designs developed as drawings/sketches would need to be recreated for the CAD system to adapt to the software tools used in subsequent detailed engineering stages:

Yes 61%



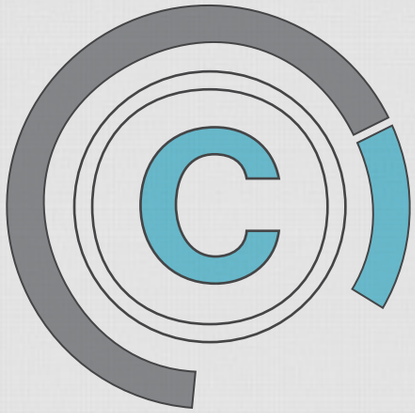
No 35%

Source: Trends in Concept Design, PTC study, July 2011
http://www.ptc.com/go/concept-design

IP Protection and Patent Significance

Percent of respondents who believe the concept design stage is a rich source of intellectual property for their company:

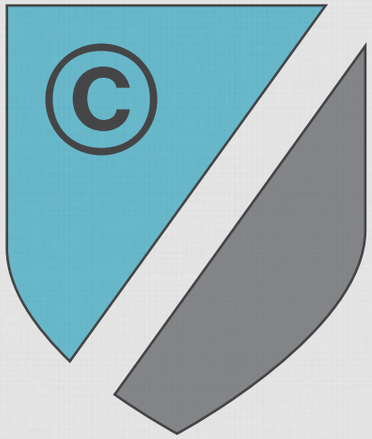
70%
Definitely



12%
Not at all

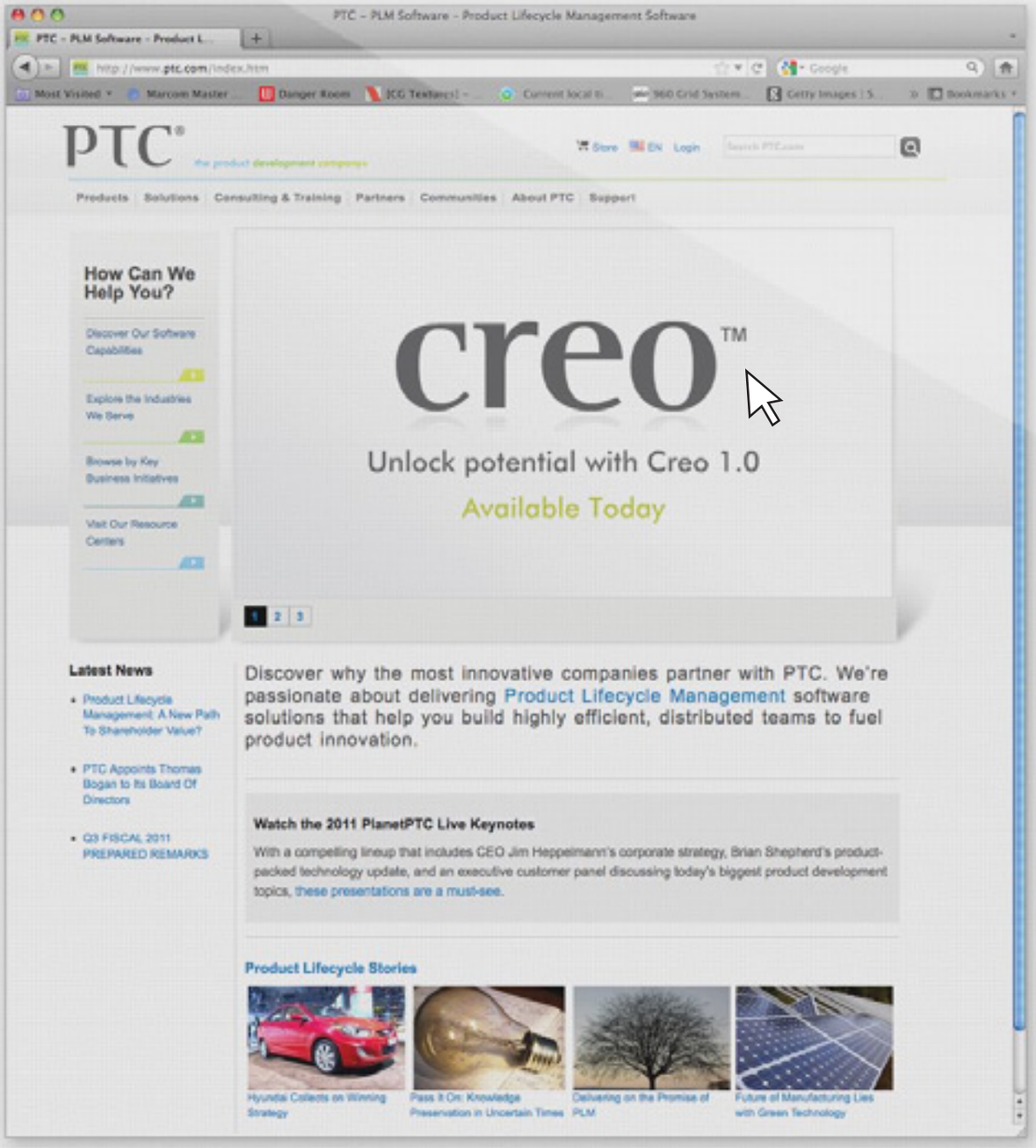
Percent of respondents who believe there are company-wide procedures for identifying and protecting IP during concept design:

56%
Definitely



23%
Not at all

Source: Trends in Concept Design, PTC study, July 2011
http://www.ptc.com/go/concept-design



To do list:

1. Visit ptc.com/go/concept-design
2. Score card my concept design process
3. Get familiar with the guidelines and solutions
4. Call PTC: 781-370-5000

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Yes

No

Source: Trends in Concept Design, PTC study, July 2011
http://www.ptc.com/go/concept-design