

# Getting Early Estimates Right

Jakob Persson

**nodeone**

DrupalCamp Austin 2010

November 20th 2010

Entermedia Room

# Introducing me



Lead Drupal Solutions Architect

Co-Founder of NodeOne

Worked with Drupal since 2005

[jakob@nodeone.se](mailto:jakob@nodeone.se)

<http://www.twitter.com/realsolipsist>

<http://drupal.org/user/37564>

# Introducing nodeone

Some of NodeOne's team and clients



Scandinavia's largest  
Drupal services  
provider

Employs 34 people

Offices in Sweden  
and Denmark

**What we do at NodeOne,  
apart from...**

# card games...



\* No he's not really Dries,  
but you knew that already.

[www.drupalcardgame.com](http://www.drupalcardgame.com)

# Druplicons wielding nun-chuks...



Druplicon Road Trip – “Showdown in Paris” (YouTube)

# Drupal rock stars...



“The Kitten Killers” Live at DrupalCon Copenhagen (photo by Dries)

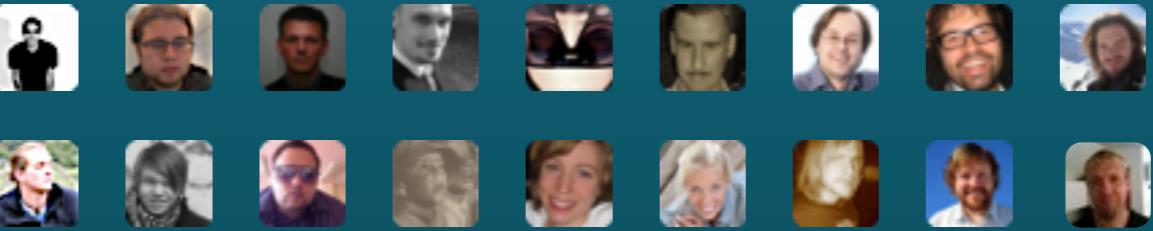
## Pilot studies



## Design and usability



## Development



## Hosting and scalability



## Training



## Consulting



# Early estimating

“There’s no point in being exact about something if you don’t even know what you’re talking about.”

— John von Neumann





**frustrated!**

bored...

uncertain?!

# What is an early estimate?

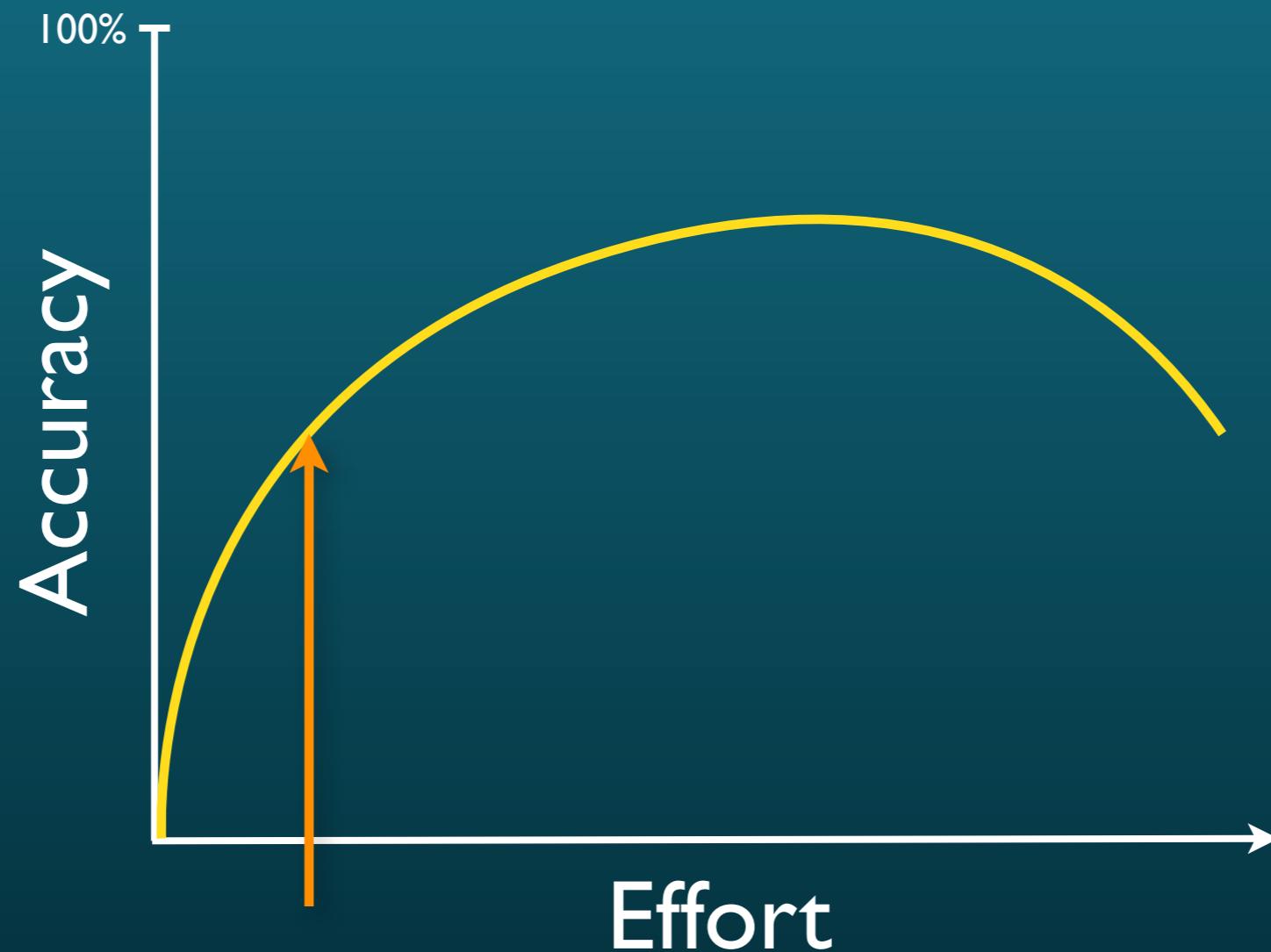
“Estimation is the calculated approximation of a result which is usable even if input data may be incomplete or uncertain.”

Source: Wikipedia

# Early estimates vs in-project estimates

	Early	In-project
Target	Feature	User story
Purpose	Decide on investment	Planning
Accuracy	Low to medium	High
Method	Expert	Group

# Effort and accuracy



Adapted from “Agile Estimating and Planning”, Cohn 2008

# Early estimates

- Can be made in relatively short time
- Generates estimates that aren't based on random guesses or chance
- Lets you use your experience as a yardstick and reference

# How early estimates are made

*“Divide et impera”*,  
how's that for a  
strategy?



#	Title	Estimate	DoE	Solution
1				
2				
3				
4				

A spreadsheet

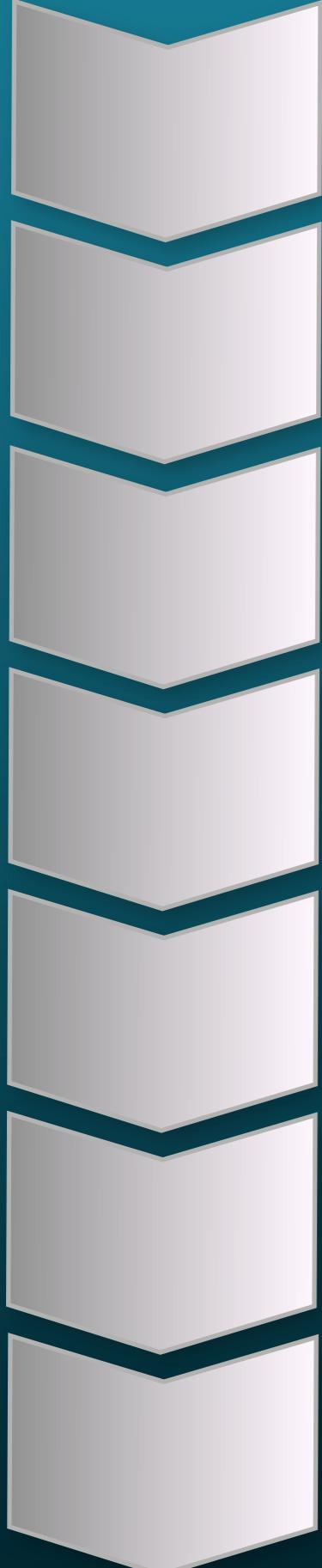
*– and possibly also –*

A Drupal-**devoted**  
developer



Dick Olsson, kick-ass Drupal developer at NodeOne

# The method



Timebox your estimation work

Analyze the requirements

Make initial guesstimate

Extract features and write proposed solutions

Estimate features

Take uncertainty and errors into account

Compare with guesstimate

*Timebox*

*Analyze requirements*

*Initial guesstimate*

*Extract features*

*Estimate features*

*Uncertainty and errors*

*Compare With guesstimate*

# TIMEBOX ESTIMATION WORK



# ANALYZE THE REQUIREMENTS



Check out the sample requirements for the Link directory site at:

[http://bit.ly/  
drupalestimating](http://bit.ly/drupalestimating)

We plan on launching the new drupalized site in the next six months.

Looking forward to your quote.

Sincerely,

John  
Website Manager

# MAKE INITIAL GUESSTIMATE



"BETWEEN THUMB AND INDEX FINGER"



# EXTRACT FEATURES AND WRITE SOLUTIONS

From: [johndoe@awesomewebsites.com](mailto:johndoe@awesomewebsites.com)  
To: You  
Subject: Link directory on Drupal

Hey,

We're looking into moving our site awesomewebsites.com to drupal and wonder how much it would cost. We would like to get rid of the proprietary software we use and have more flexibility. Drupal seems to be the best choice for us.

Our site is a link directory where people with awesomely cool sites can post links to their sites. The directory is divided into categories and people can pay for premium exposure. We also have something called "link of the day" which costs \$50 and puts a link to your site on the front page.

The site has a blog where we post updates and business articles on a regular basis. This blog is written by several people and they can only be able to edit their own blog posts. Though they should be able to add other users who can edit their posts so that they can cooperate on a post.

We're not planning on migrating content but we're offshoring the work and all old links will be added manually. We want to tag content too and we think it's best to migrate manually and do the tagging at the same time.

It's important that it's super easy to post new links and comment on blog posts. When you add a link you get a user account. Unless you have one already. Also, administrators must be able to approve links posted. Admins should get an email when links are added so they can go and check. We want captcha so that automated postings are prevented.

When you buy a premium link you pay with credit card, we have a processor for this and drupal needs to integrate with them. It's important that users feel safe when submitting links. For this reason the whole submit process must be secure connection.

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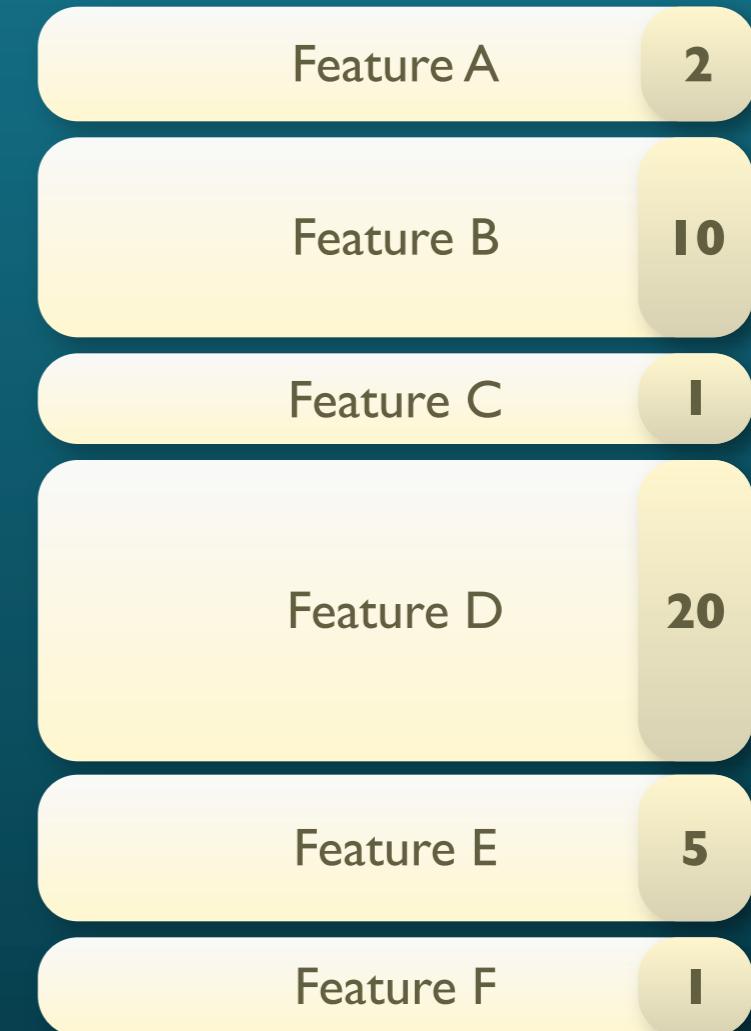
The sample requirements for the link directory website can also be found on the web:

<http://bit.ly/drupalestimating>



Requirements

are broken  
down into



Definition of a

Feature

A conceptually and contextually discrete piece of the final deliverables with a proposed solution

From: [johndoe@awesomcoolwebsites.com](mailto:johndoe@awesomcoolwebsites.com)

To: You

Subject: Link directory on Drupal

Hey,

We're looking into moving our site awesomcoolwebsites.com to drupal and wonder how much it would cost. We would like to get rid of the proprietary software we use and have more flexibility. Drupal seems to be the best choice for us.

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Sincerely,

John  
Website Manager

Link directory sample requirements:

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Website Manager

“Our site is a link directory where people with awesomely cool sites can post links to their sites”

I

Nodetype: Link

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John  
Website Manager

I

## Nodetype: Link

“Also, administrators must be able to approve links posted. Admins should get an email when links are added so they can go and check.”



2	Users add links which are unpublished before approved
3	Administrators are notified when links are added
4	Administrators can view and approve links

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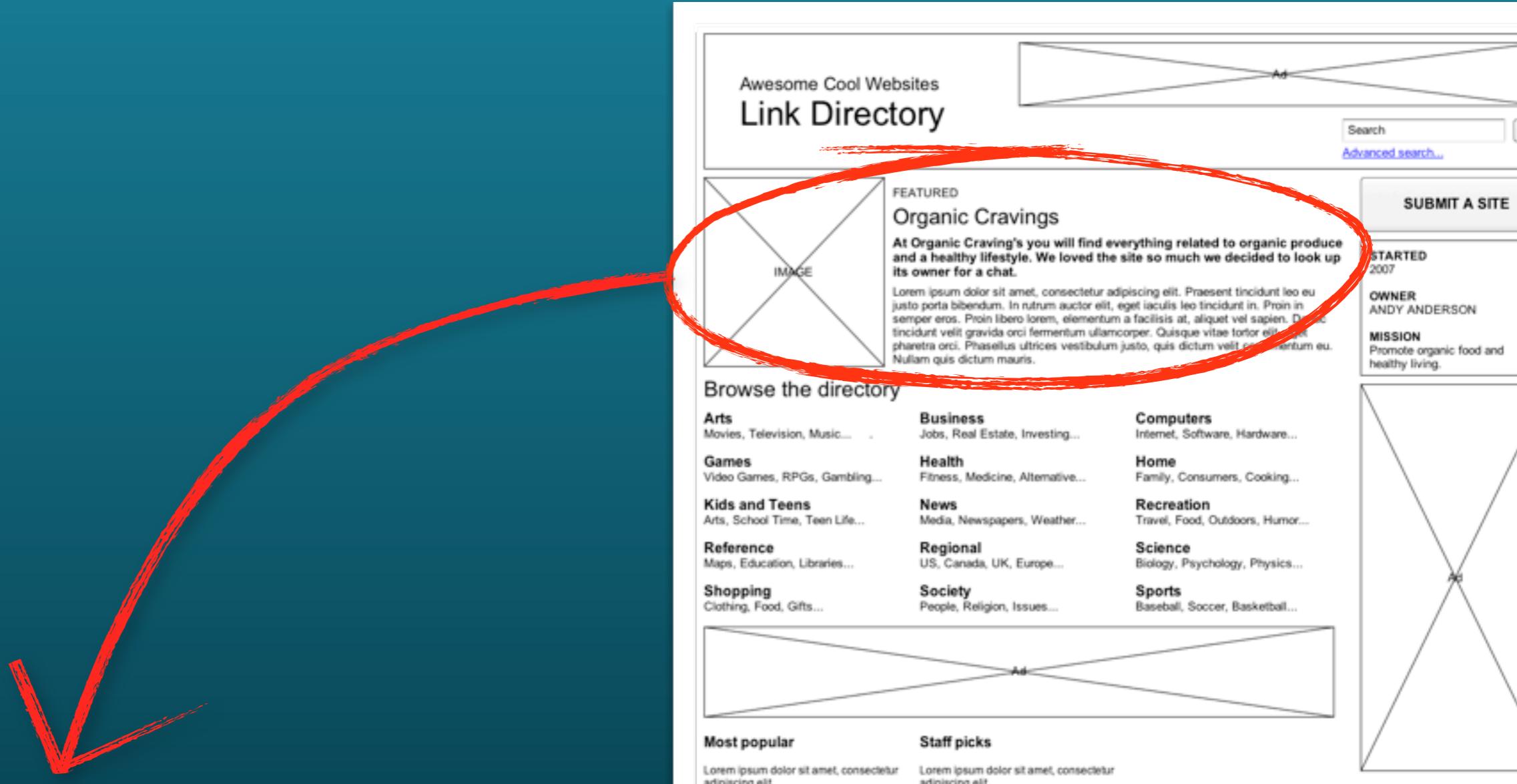
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Website Manager



14

Featured link on the front page

A view displaying a single node of type “Featured”



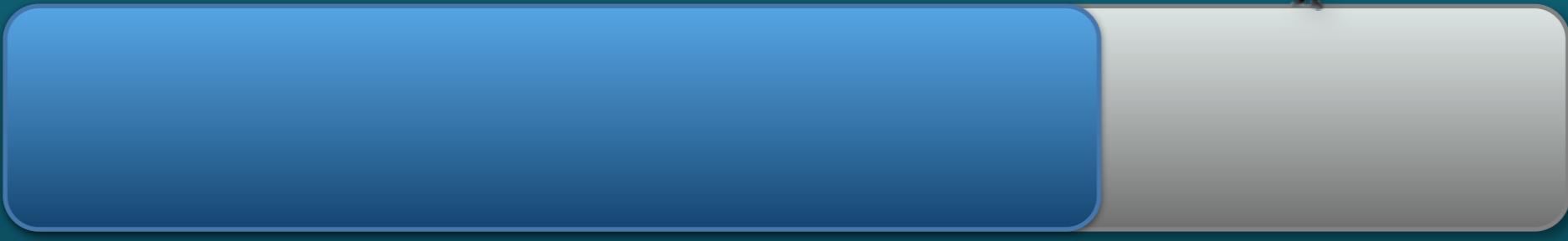
venenatis.	venenatis.
Nulla enim nisi, dapibus et varius sit amet, mattis vel metus.	Nulla enim nisi, dapibus et varius sit amet, mattis vel metus.
Suspendisse tortor eros, fringilla id malesuada sit amet, semper ut nunc.	Suspendisse tortor eros, fringilla id malesuada sit amet, semper ut nunc.
Praoin lacus neque. Integer viverra iaculis mi et tincidunt.	Praoin lacus neque. Integer viverra iaculis mi et tincidunt.
Pellentesque vel mauris in lacus mollis placerat quis nec metus.	Pellentesque vel mauris in lacus mollis placerat quis nec metus.

1	Nodetype: Link
2	Users add links which are unpublished before approved
3	Administrators are notified when links are added
4	Administrators can view and approve links



#	Description	Proposed solution
1	Nodetype: Link	Create a node type called link and use the Link module for the link field.
2	Users add links which are unpublished before approved	Use Flag and Rules modules to create a workflow. The workflow sets a newly created Link node as unpublished.
3	Administrators are notified when links are added	Workflow created with Rules, it sends an email to the webmaster once a link node is created.
4	Administrators can view and approve links	A list of unpublished nodes of type “link”, created using the Views module.





-30%



# Estimation sheet with sample requirements

<http://bit.ly/estimationsheet3>

A	B	C	D	F
1	X #	Ref	Feature	Est. hours
2	<b>Content Management and E-commerce</b>			
3	1	F001	Set up Drupal site	5
4	2	F002	Nodetype: Link	1
5	3	F003	Categories	1
6	4	F004	Premium exposure	10
7	5	F005	Tags	0.5
8	6	F006	Link of the day	5
9	7	F007	Node type: Featured	1
10	8	F008	Blog	5
11	9	F009	Allow blog post authors to delegate edit perm	5
12	10	F010	E-commerce to buy premium spot	10
13	11	F011	Payment with credit card	20
	12	F012	Create user account when you post content	5
14				
15	13	F013	Nodetype: Link	1
16	14	F014	Users add links which are unpublished before approved	2
17	15	F015	Administrators are notified when links are added	5
18	16	F016	Administrators can approve or reject them	5

# Estimation Sheet Template

<http://bit.ly/estimationtemplate2>

Google docs Copy of Drupal Early Estimation Sheet Template (v)

File Edit View Insert Format Form Tools Help

Printer icon, Refresh icon, Cloud icon, Paint icon, \$ % 123 dropdown, 10pt dropdown, Bold icon, Italic icon, Underline icon, A dropdown, Grid icon, Print icon

Formula: X

	A	B	C	D	E	F
1	X	#	Ref	Feature		Est. hours
2				Section 1		
3		1	F001	Feature name		1
4		2	F002	Feature name		1
5		3	F003	Feature name		1
6		4	F004	Feature name		2
7		5	F005	Feature name		2
8		6	F006	Feature name		2
9		7	F007	Feature name		5
10		8	F008	Feature name		5
11		9	F009	Feature name		5
12		10	F010	Feature name		5
13						
14						
15						
16				Section 2		
17		11	F011	Feature name		10
18		12	F012	Feature name		10
19		13	F013	Feature name		10
20		14	F014	Feature name		10
21		15	F015	Feature name		20

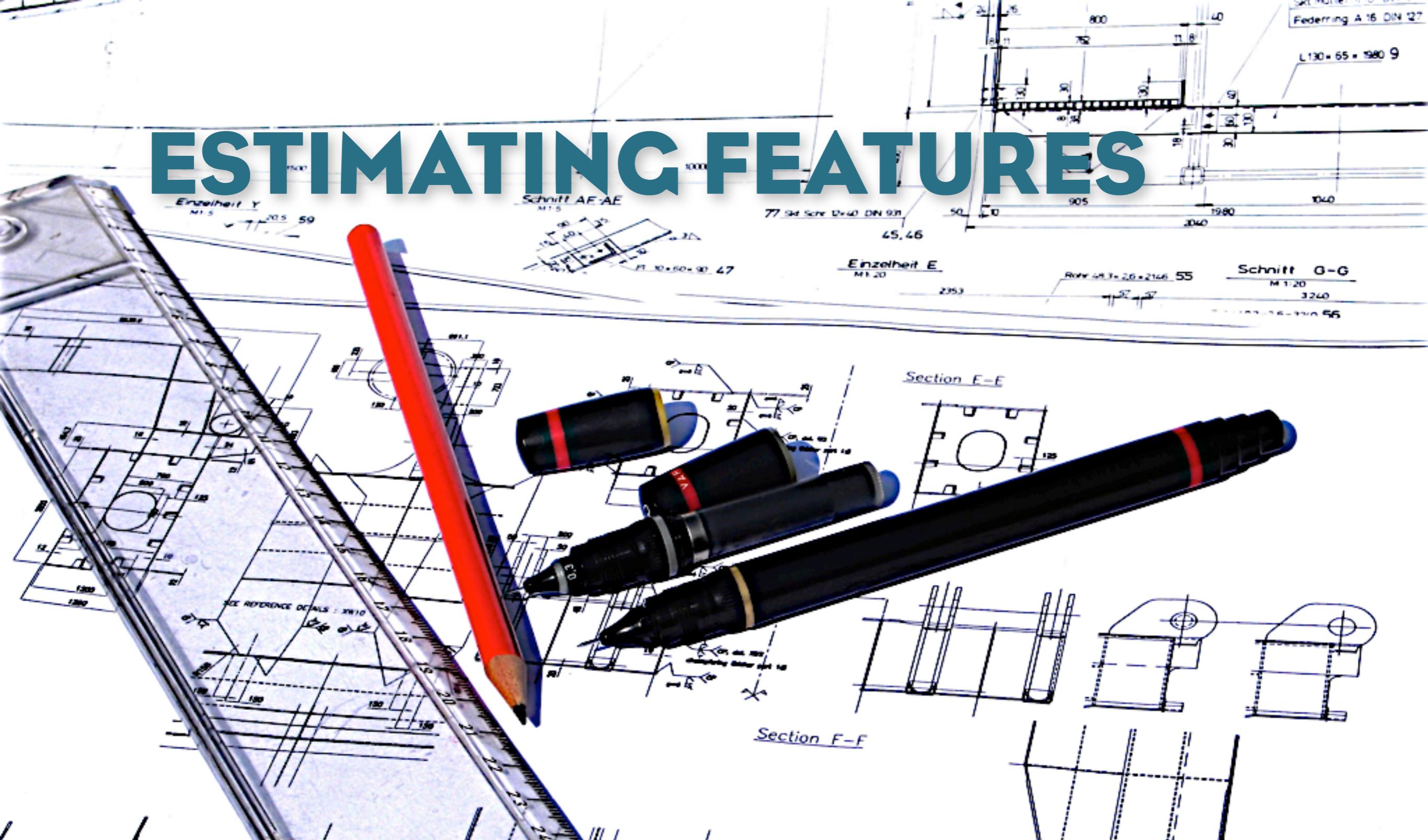
2	Users add links which are unpublished before approved	2	5	Use Flag and Rules modules to create a workflow. The workflow sets a newly created Link node as unpublished.	Number	Description



		Number	Description	Estimate	Degree of Experience	Proposed Solution
2	Users add links which are unpublished before approved	2	5	Use Flag and Rules modules to create a workflow. The workflow sets a newly created Link node as unpublished.		



# ESTIMATING FEATURES



- Development
- Writing unit tests
- Configuration
- Testing
- Fixing bugs
- Deploying to staging server



# Estimating using a scale

- Scale of fixed number of hours
- Only use numbers from the scale.
- Always round up



Order of  
Magnitude

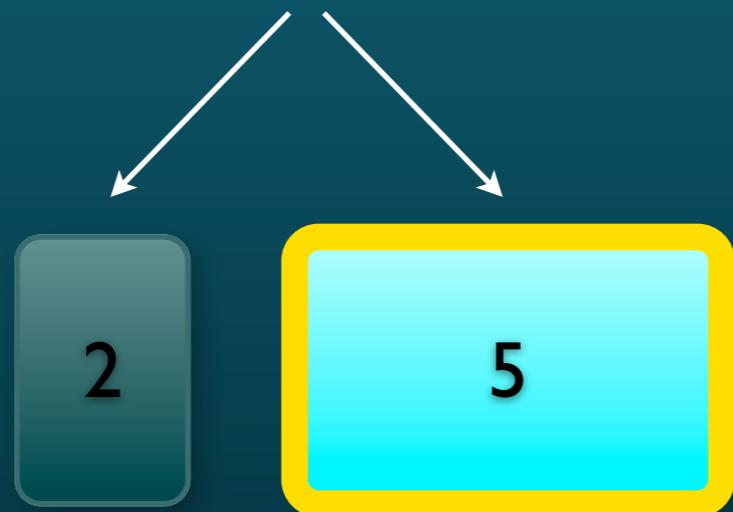


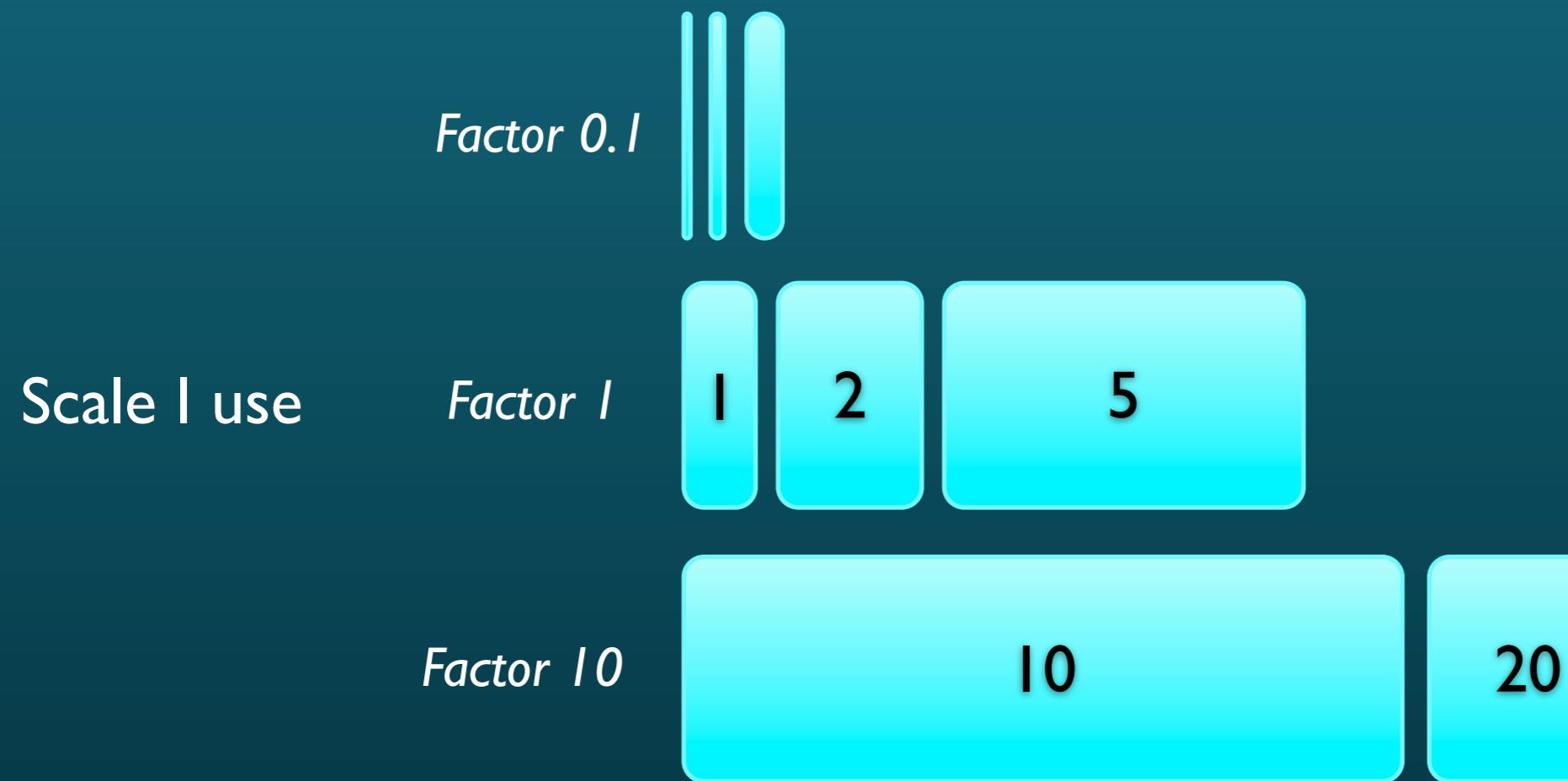
Scale I use



3	Administrators are notified when links are added	5		Use Flag and Rules modules to create a workflow. The workflow sets a newly created Link node as unpublished.
---	--	---	--	--

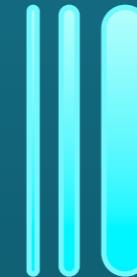
~ 3 hours (ideally)





Changing settings or setting configuration

*Factor 0.1*



Building functionality using Drupal's user interface

*Factor 1*



Developing new modules or themes

*Factor 10*

10

20

	Integrate user accounts with mailing list service provider	10		Write a module that POSTs the user's email address to the provider's REST API when the user registers.	



# TAKING UNCERTAINTY AND ERRORS INTO ACCOUNT





Nope, despite appearances it's not magic!

# Chaotic development

Abandoning planning under pressure

Poor coding practices cause extensive bug fixing

Incomplete or unskilled project planning

Developer gold-plating

*Inexperienced personnel*

Lack of automated source code control

Requirements that weren't investigated very well



# Overlooked activities

Migration of data

Producing help or documentation

Deployment

Integrating third party systems

Working with a third party



A black and white photograph of a dragster race car in motion, blurred background.

**Performance**

# Stability



A close-up photograph of a metal chain attached to a metal frame, symbolizing security.

**Security**



# Usability

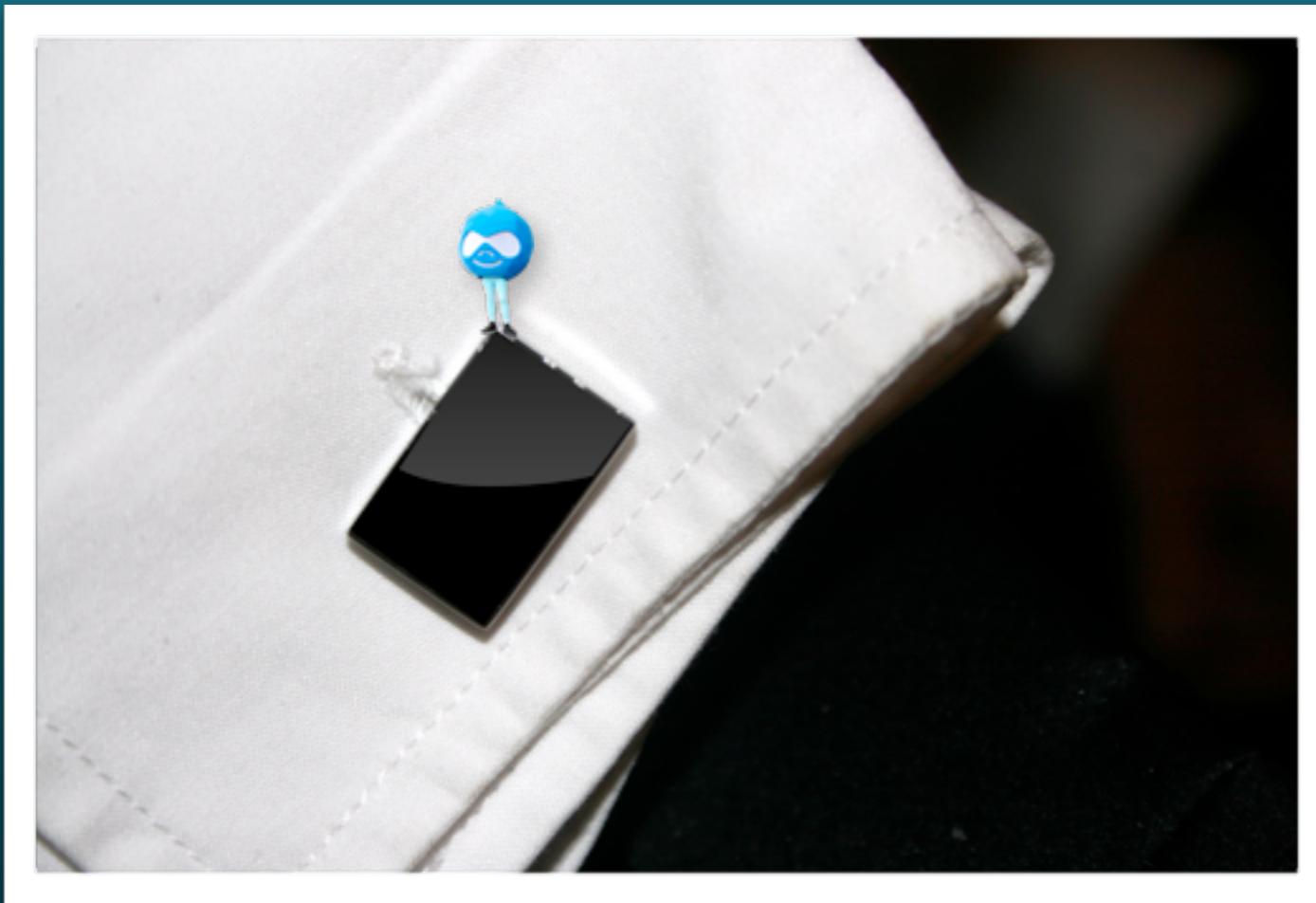
# Unfounded optimism

“You never have to fear that estimates created by developers will be too pessimistic, because developers will always generate a too-optimistic schedule.”

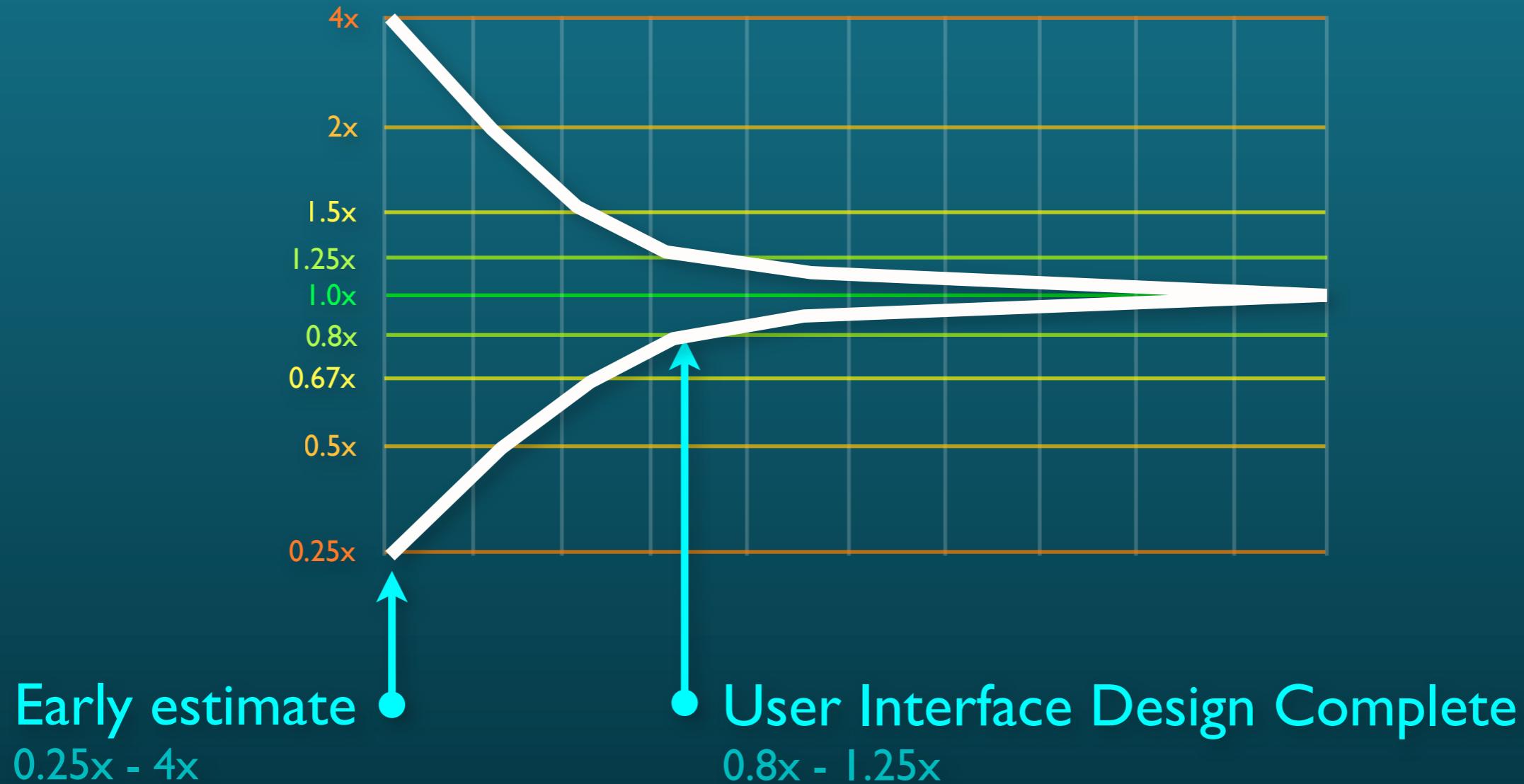
– Chris Peters, Microsoft Vice President



# Off-the-cuff estimation



# The cone of uncertainty



# Reducing uncertainty

Proposing well-tested solutions you have used before.

Researching solutions by googling, reading articles and blog posts.

Prototyping solutions in Drupal.

Avoiding solutions that require integration with unknown third-party solutions.



# Degrees of experience

You have done the exact same thing in other projects.

Someone else at your company has done it in other projects.

You have read about it a way to solve it.

You can think of a solution that seems reasonable/possible.

You have no idea how to implement a solution.



# Degrees of experience

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# Degrees of experience

Deg.	Description	Uncertainty
5	You have done the exact same thing in other projects.	0.8x - 1.25x
4	Someone else at your company has done it in other projects.	0.67x - 1.5x
3	You have read about it a way to solve it.	0.5x - 2x
2	You can think of a solution that seems reasonable/possible.	0.25x - 4x
1	You have no idea how to implement a solution.	0.17x - 6x



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# Degree of experience

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1	You have no idea how to implement a solution.	0.17x - 6x



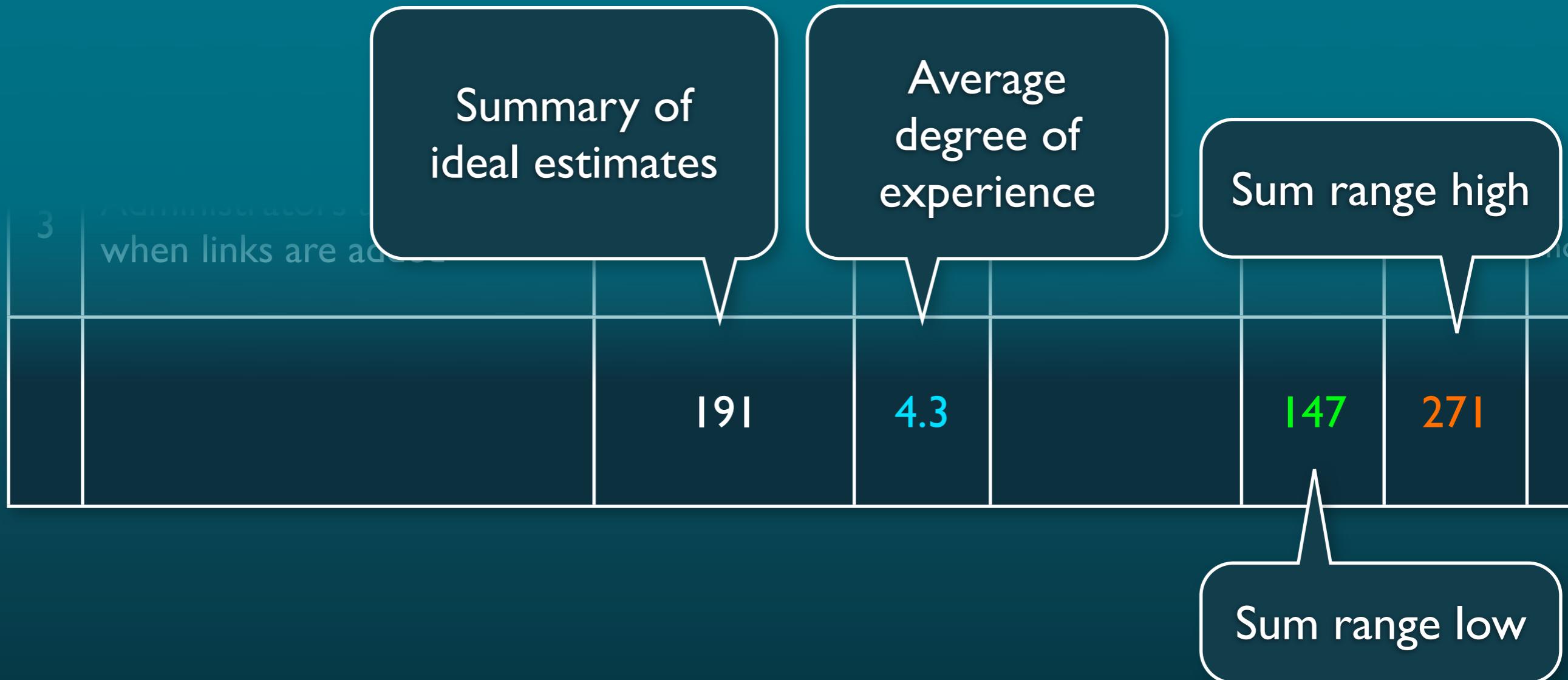
#	Description	Est	Degree of Exp.	Range	Low	High	Prob.
1	Nodetype: Link	1	5	$1 \times 0.8 = 0.8$ $1 \times 1.25 = 1.25$	0.8	1.25	Cre the
2	Users add links which are unpublished before approved	2	4	$2 \times 0.67 = 1.34$ $2 \times 1.5 = 3$	1.34	3	Use a w new unp
3	Administrators are notified when links are added	5	3	$5 \times 0.5 = 2.5$ $5 \times 2 = 10$	2.5	10	W an no
4	Administrators can view and approve links	2	5	$2 \times 0.8 = 1.6$ $2 \times 1.25 = 2.5$	1.6	2.5	A li “lin mo



#	Description	Est	Degree of Exp.	Range	Low	High	Prob.
1	Nodetype: Link	1	5	$1 \times 0.8 = 0.8$ $1 \times 1.25 = 1.25$	0.8	1.25	Cre the
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4	Administrators can view and approve links	2	5	$2 \times 0.8 = 1.6$ $2 \times 1.25 = 2.5$	1.6	2.5	A li “lin mo

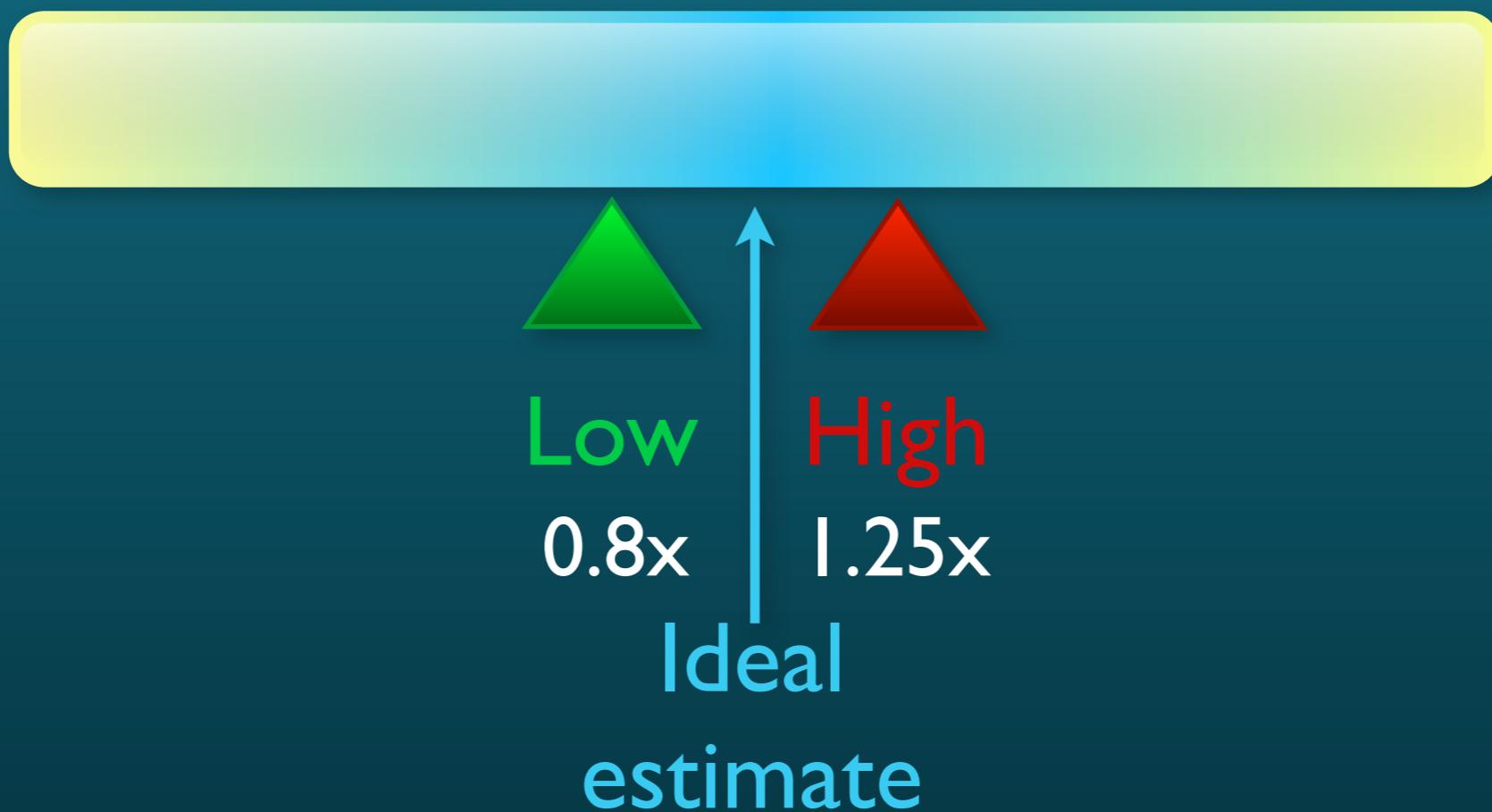


# Summing up estimates



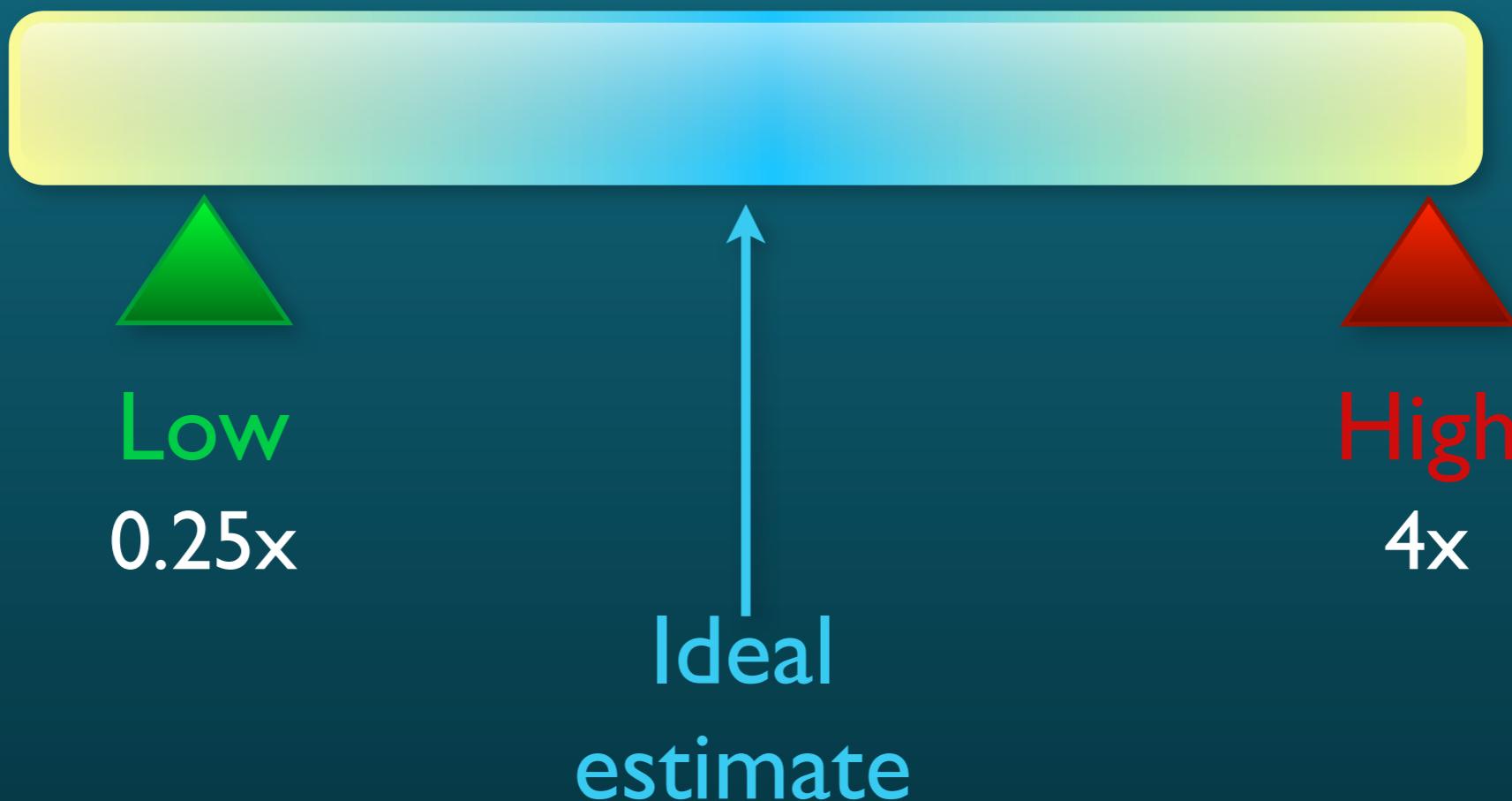
# Symmetrical uncertainty

Low uncertainty



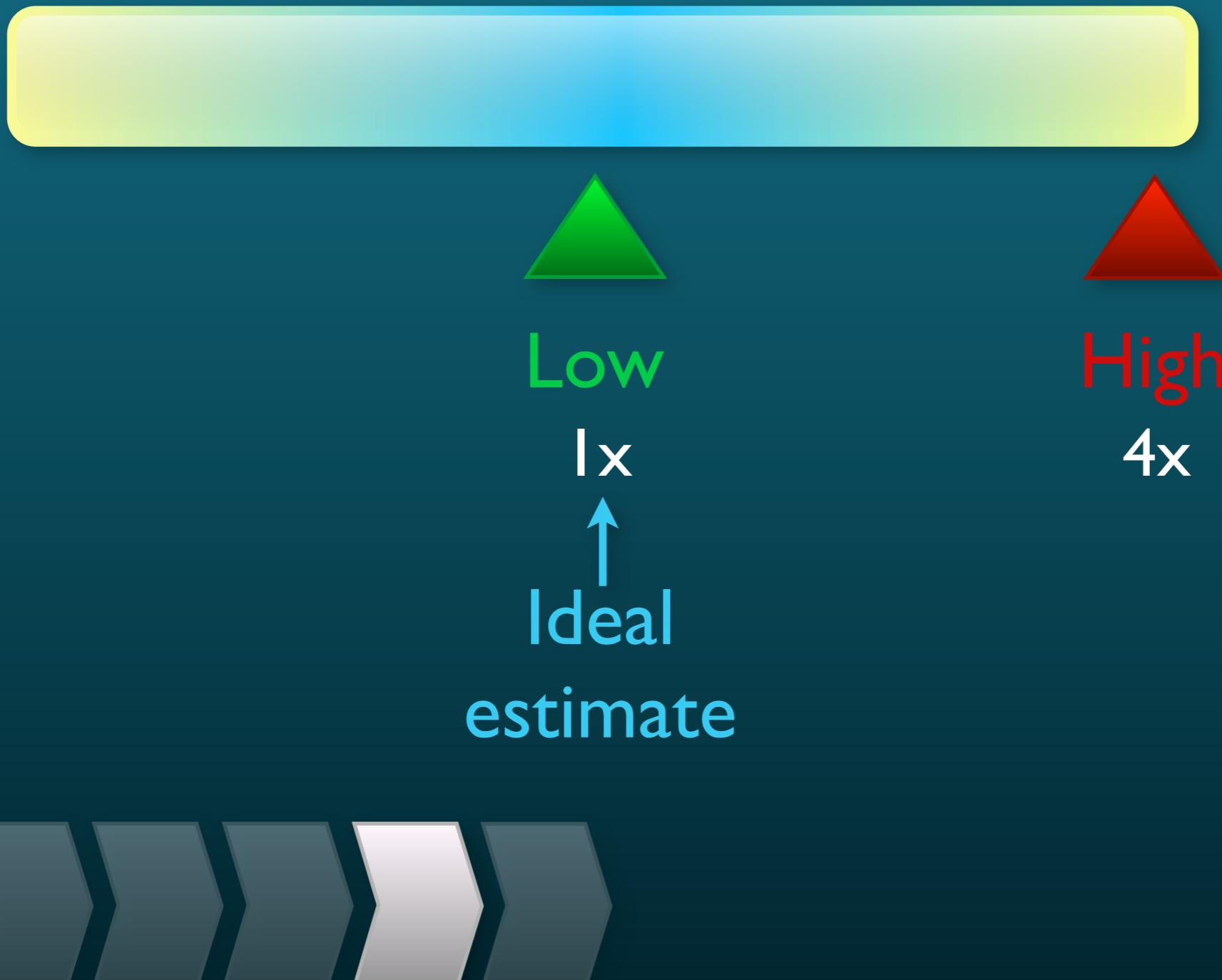
# Symmetrical uncertainty

*High uncertainty*



# Asymmetrical uncertainty

*Or: it can only get worse!*



Pessimistic				Optimistic				
	Symmetrical	Asymmetrical		Symmetrical	Asymmetrical			
1	0.17	6	1	6	0.67	1.5	1	1.5
2	0.25	4	1	4	0.71	1.4	1	1.4
3	0.5	2	1	2	0.77	1.3	1	1.3
4	0.67	1.5	1	1.5	0.83	1.2	1	1.2
5	0.8	1.25	1	1.25	0.91	1.1	1	1.1



# Symmetrical uncertainty

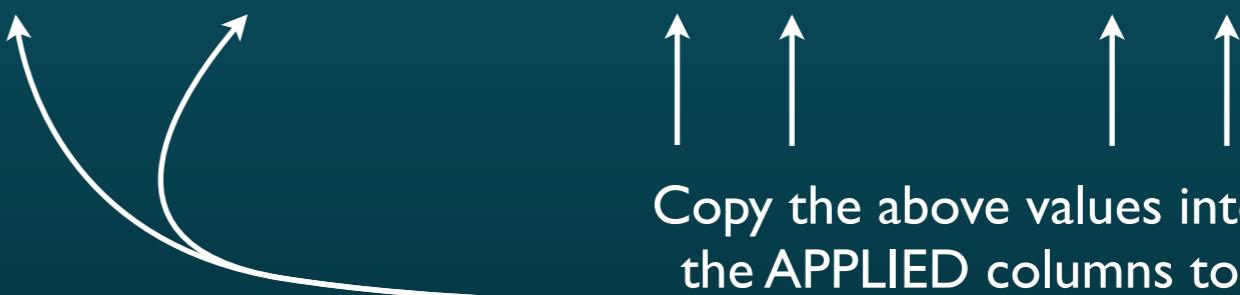


# Asymmetrical uncertainty



Use the *UncertaintyFactors* tab in your sheet to set factors and symmetry

Degree of Experience	APPLIED		Pessimistic (SYMM)	Pessimistic (ASYMM)	Optimistic (SYMM)	Optimistic (ASYMM)	
Unknown	1	0.17	6	1	6	0.67	1.5
Can speculate about solution	2	0.25	4	1	4	0.71	1.4
Know solution by reference	3	0.5	2	1	2	0.77	1.3
Know someone else who has done it before	4	0.67	1.5	1	1.5	0.83	1.2
Done it before	5	0.8	1.25	1	1.25	0.91	1.1



Copy the above values into the APPLIED columns to work with **asymmetrical** uncertainty



# The bottom line

It's **easy** to estimate what you know.

It's **hard** to estimate what you know you don't know.

It's **very hard** to estimate things that you don't know you don't know.

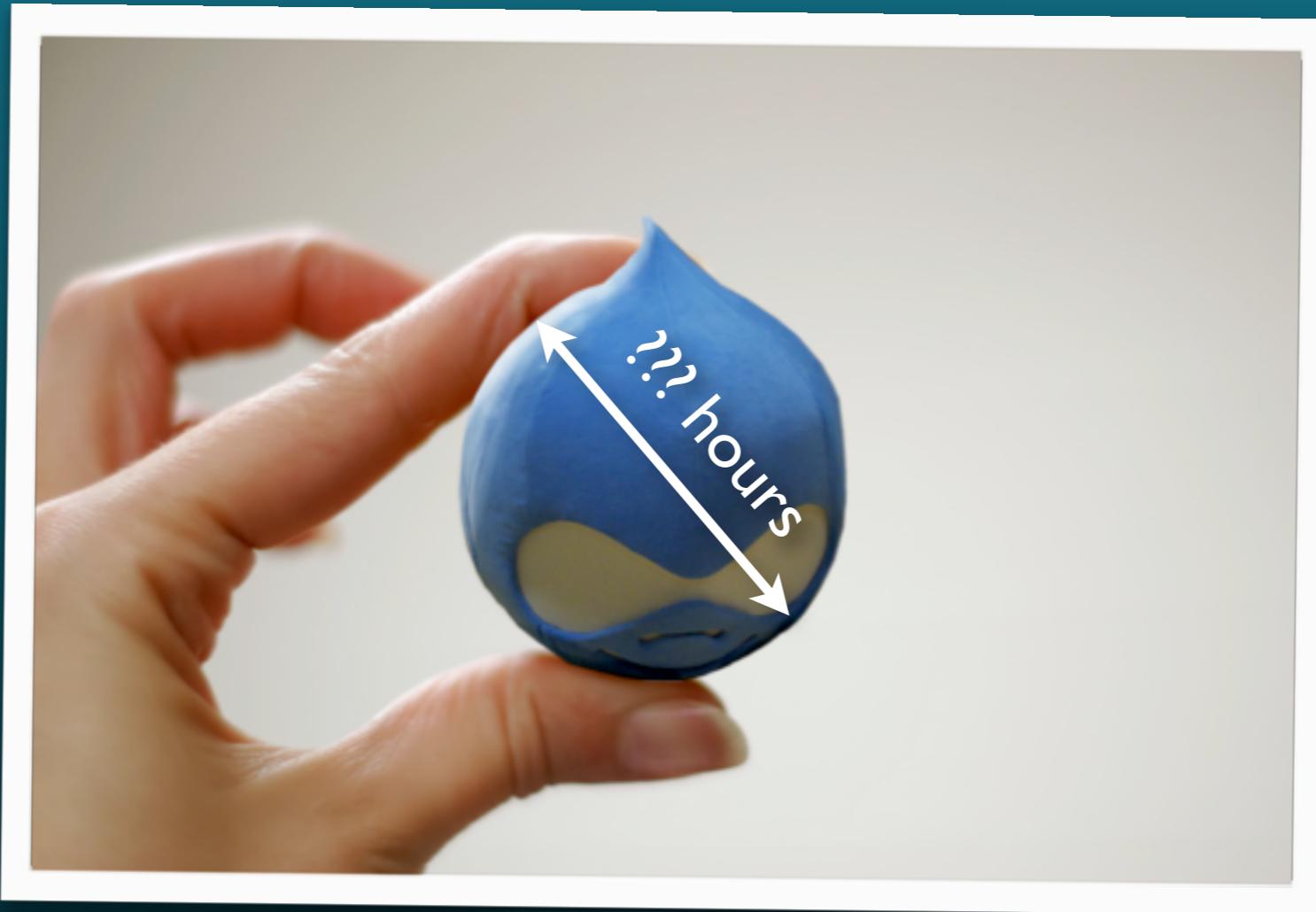


# Overhead time

Administration and project management	1.25x
Testing	1.15x
Theming	1.4x



# COMPARE WITH GUESSTIMATE



Start big, reduce later

# Awareness of time

# Culture

If unsure, ask an expert



# Recommended reading

