Making Leaders Successful Every Day

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OSS And Its Role In Lean Development

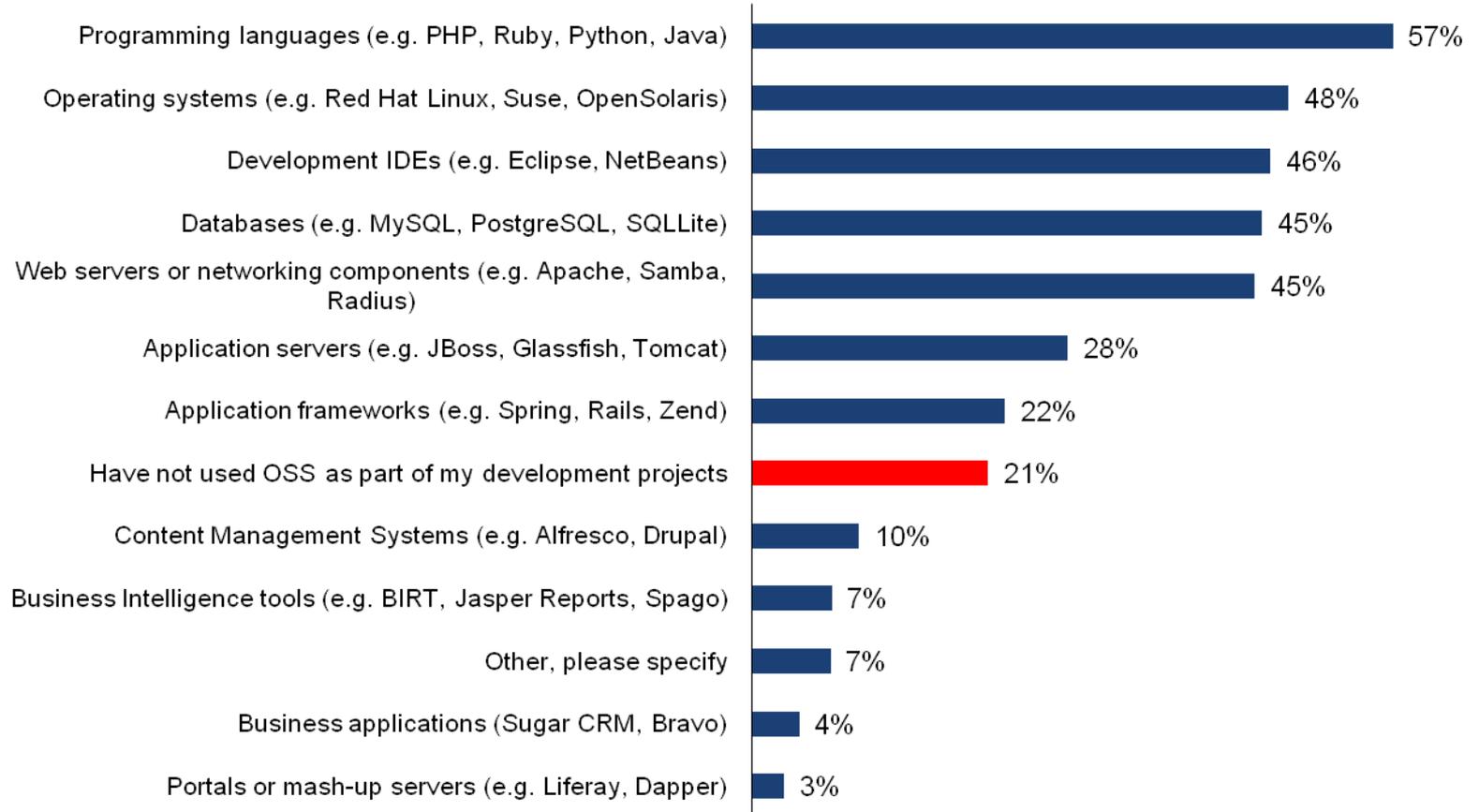Jeffrey Hammond, Principal Analyst

30 September, 2010

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Open source software (OSS) is a practical enabler of lean software production.

Open Source is widely adopted…

"Which of the OSS infrastructure tools have you included as part of your development activities or deployed an application or software project to?" (Select all that apply.)

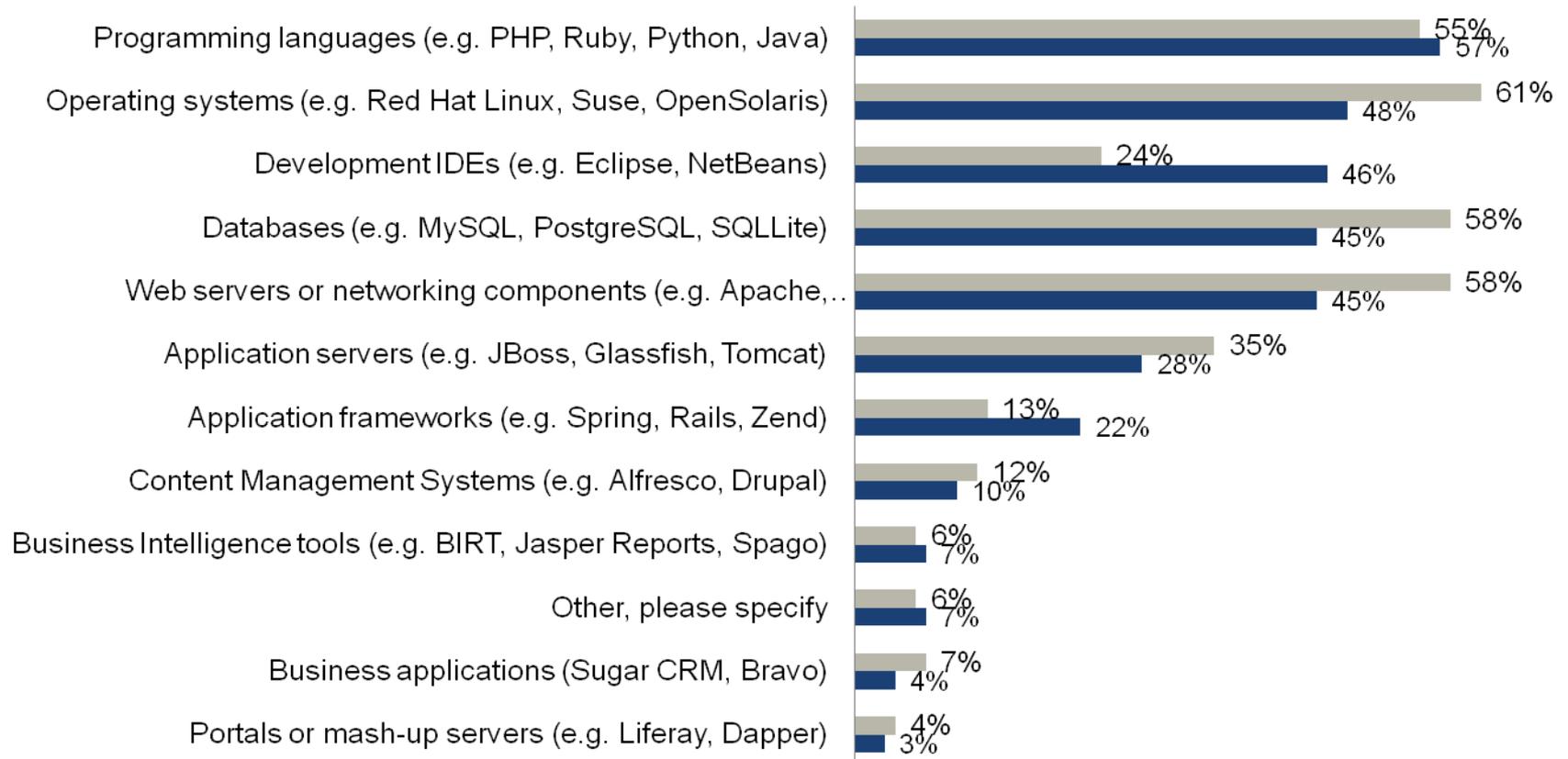| Category	Percentage
Programming languages (e.g. PHP, Ruby, Python, Java)	57%
Operating systems (e.g. Red Hat Linux, Suse, OpenSolaris)	48%
Development IDEs (e.g. Eclipse, NetBeans)	46%
Databases (e.g. MySQL, PostgreSQL, SQLLite)	45%
Web servers or networking components (e.g. Apache, Samba, Radius)	45%
Application servers (e.g. JBoss, Glassfish, Tomcat)	28%
Application frameworks (e.g. Spring, Rails, Zend)	22%
Have not used OSS as part of my development projects	21%
Content Management Systems (e.g. Alfresco, Drupal)	10%
Business Intelligence tools (e.g. BIRT, Jasper Reports, Spago)	7%
Other, please specify	7%
Business applications (Sugar CRM, Bravo)	4%
Portals or mash-up servers (e.g. Liferay, Dapper)	3%

Base: 1,298 development pros at North American and European enterprises and SMBs

Source: Forrester -Dr. Dobb's 2009 Developer Technographics Survey, Q3 2009

…and management has caught up to developers

"Which of the OSS infrastructure tools have you included as part of your development activities or deployed an application or software project to?" (Select all that apply.)

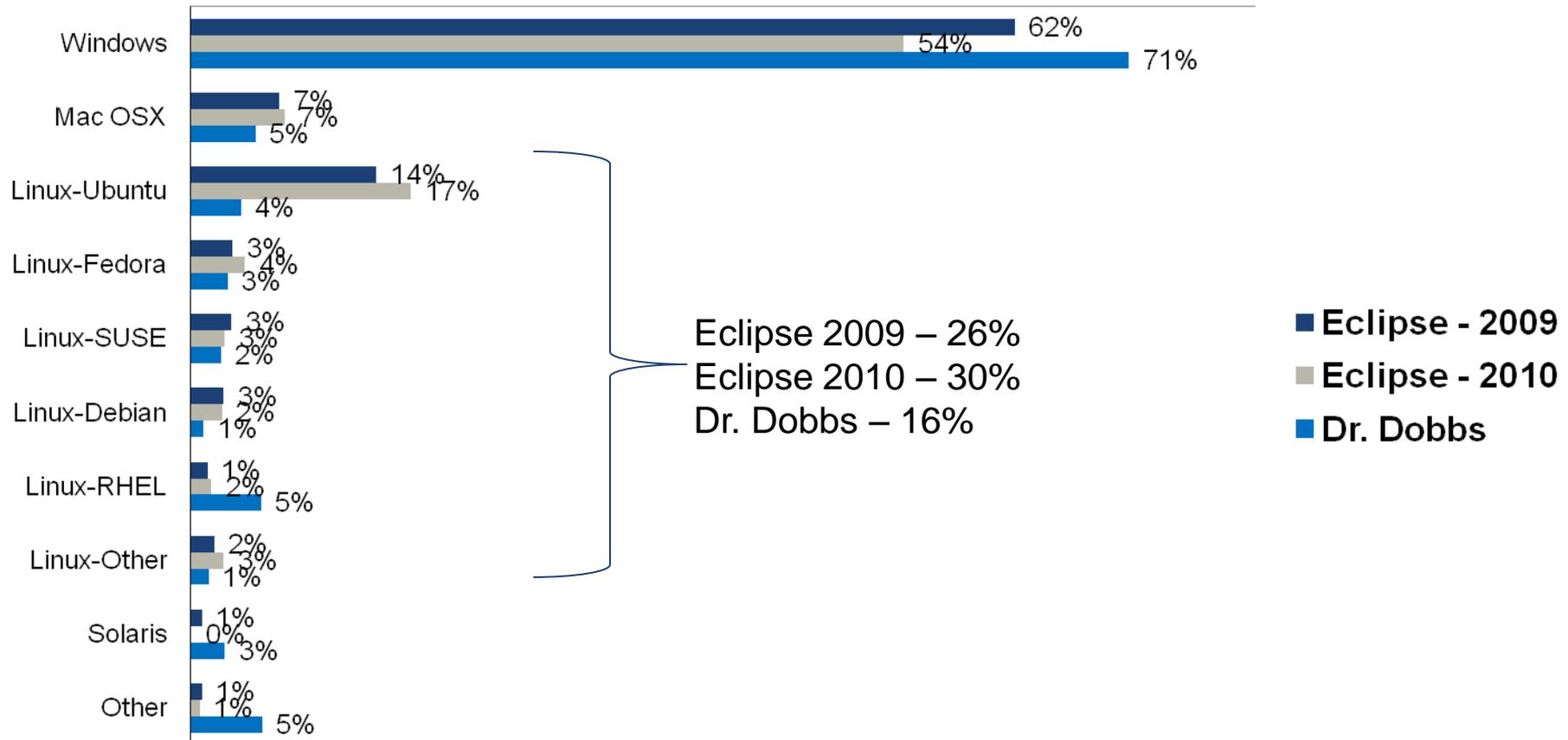| Category	Gray	Blue
Programming languages (e.g. PHP, Ruby, Python, Java)	55%	57%
Operating systems (e.g. Red Hat Linux, Suse, OpenSolaris)	61%	48%
Development IDEs (e.g. Eclipse, NetBeans)	24%	46%
Databases (e.g. MySQL, PostgreSQL, SQLLite)	58%	45%
Web servers or networking components (e.g. Apache,…)	58%	45%
Application servers (e.g. JBoss, Glassfish, Tomcat)	35%	28%
Application frameworks (e.g. Spring, Rails, Zend)	13%	22%
Content Management Systems (e.g. Alfresco, Drupal)	12%	10%
Business Intelligence tools (e.g. BIRT, Jasper Reports, Spago)	6%	7%
Other, please specify	6%	7%
Business applications (Sugar CRM, Bravo)	7%	4%
Portals or mash-up servers (e.g. Liferay, Dapper)	4%	3%

Base: 1,298 development pros at North American and European enterprises and SMBs and 1,298 development pros at North American and European enterprises and SMBs

Source: Forrester -Dr. Dobb's 2009 Developer Technographics Survey, Q3 2009, Enterprise And SMB Software Survey, North America And Europe, Q4 2009

At the operating system level - development

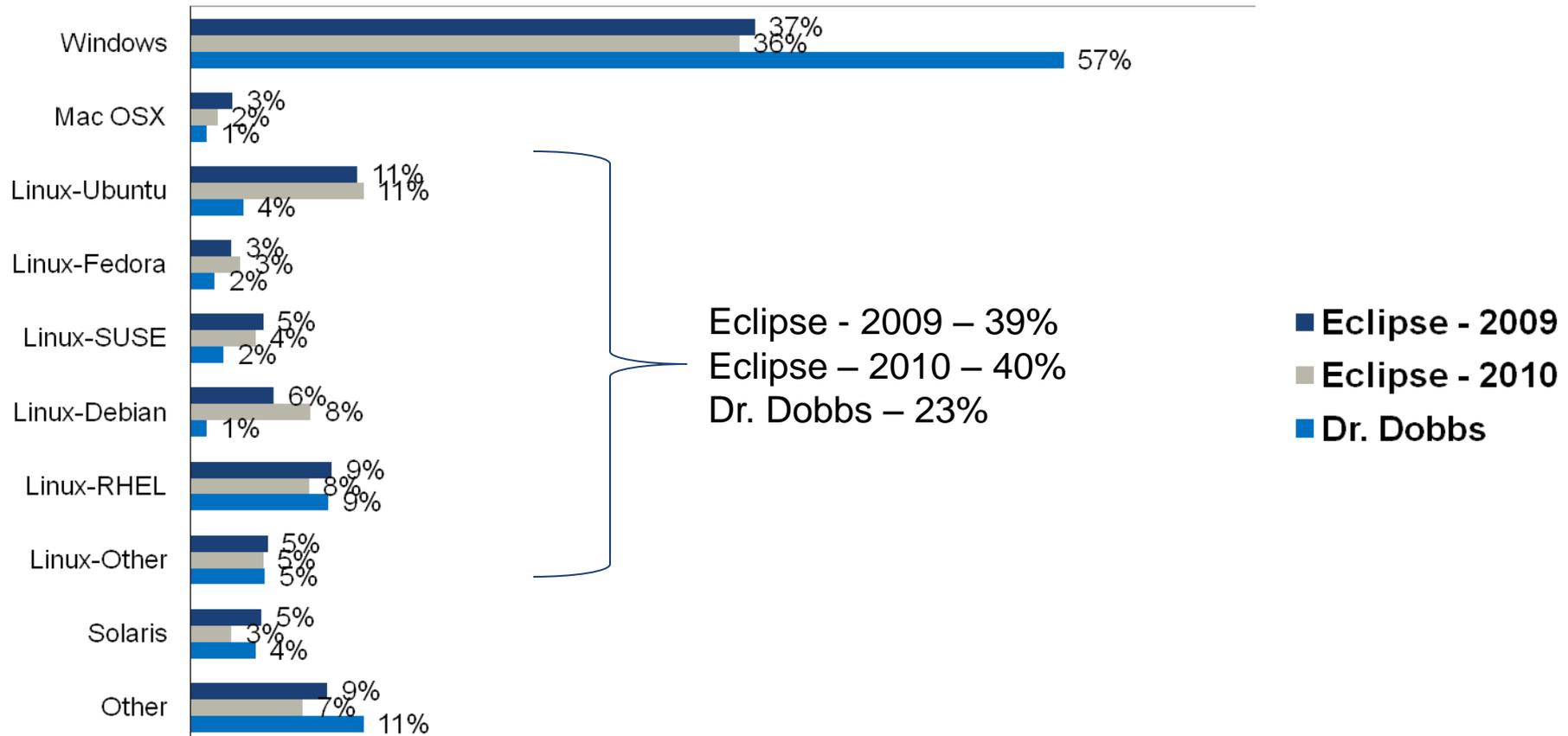"What is the primary operating system you use for development" (Choose one)

Eclipse 2009 – 26%
Eclipse 2010 – 30%
Dr. Dobbs – 16%

Legend:
- Eclipse - 2009
- Eclipse - 2010
- Dr. Dobbs

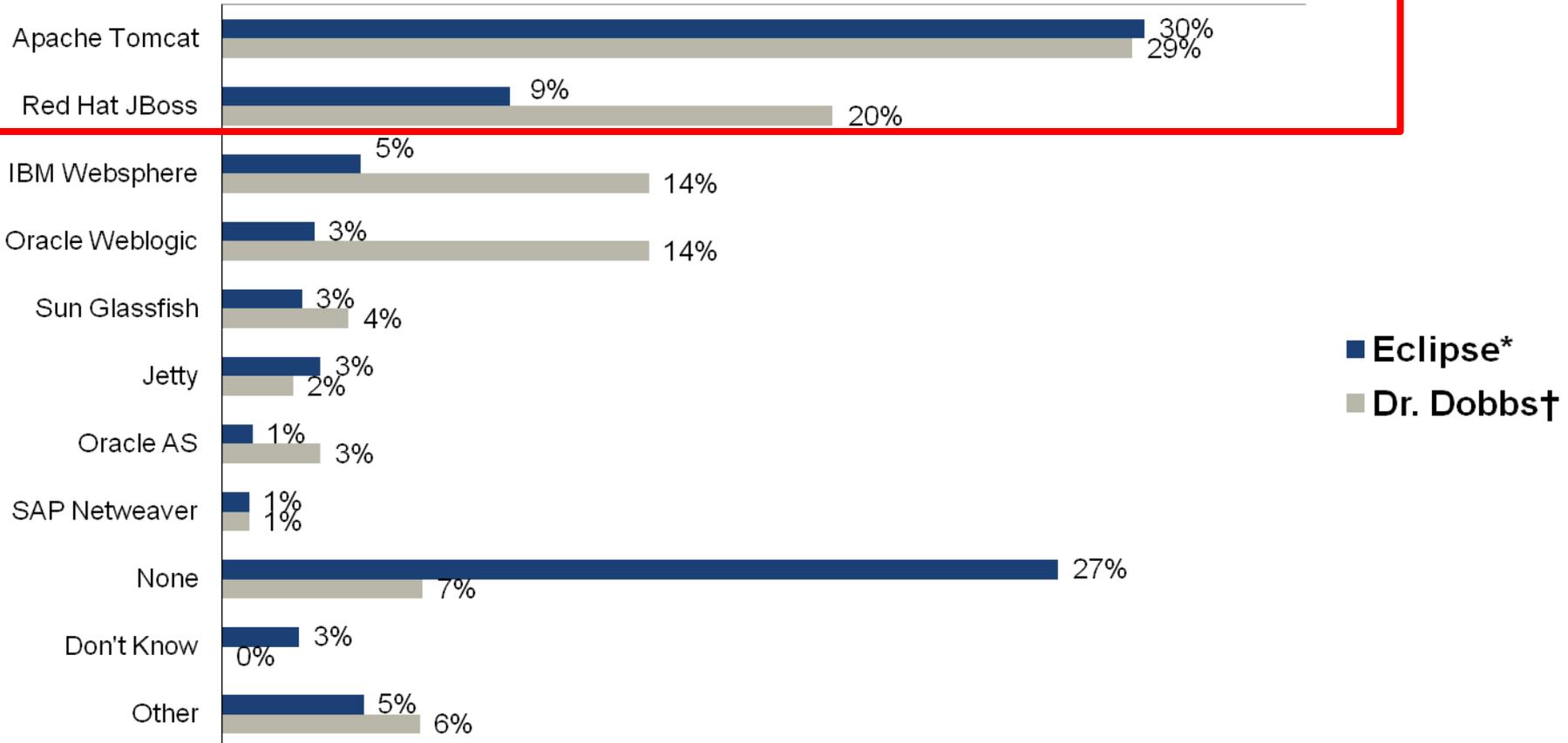| OS	Eclipse - 2009	Eclipse - 2010	Dr. Dobbs
Windows	62%	54%	71%
Mac OSX	7%	7%	5%
Linux-Ubuntu	14%	17%	4%
Linux-Fedora	3%	4%	3%
Linux-SUSE	3%	3%	2%
Linux-Debian	3%	3%	1%
Linux-RHEL	1%	2%	5%
Linux-Other	2%	3%	1%
Solaris	1%	0%	3%
Other	1%	1%	5%

Base: Base: 1481 application development professionals, 1948 application development professionals, 1298 application development professional

Source: 2009 Eclipse Community Survey, Q2 2009, 2010 Eclipse Community Survey, Q2 2010, Dr. Dobbs Developer Technographics Q3,2009

At the operating system level - deployment

"What is the primary operating system you use for deployment (Choose one)

	Eclipse - 2009	Eclipse - 2010	Dr. Dobbs
Windows	37%	36%	57%
Mac OSX	3%	2%	1%
Linux-Ubuntu	11%	11%	4%
Linux-Fedora	3%	3%	2%
Linux-SUSE	5%	4%	2%
Linux-Debian	6%	8%	1%
Linux-RHEL	9%	8%	9%
Linux-Other	5%	5%	5%
Solaris	5%	3%	4%
Other	9%	7%	11%

Eclipse - 2009 – 39%
Eclipse – 2010 – 40%
Dr. Dobbs – 23%

Base: Base: 1481 application development professionals, 1948 application development professionals, 1298 application development professional

Source: 2009 Eclipse Community Survey, Q2 2009, 2010 Eclipse Community Survey, Q2 2010, Dr. Dobbs Developer Technographics Q3,2009

At the app server level

"What is the primary app server you typically use for deployed applications?" (Choose one.)

	Eclipse*	Dr. Dobbs†
Apache Tomcat	30%	29%
Red Hat JBoss	9%	20%
IBM Websphere	5%	14%
Oracle Weblogic	3%	14%
Sun Glassfish	3%	4%
Jetty	3%	2%
Oracle AS	1%	3%
SAP Netweaver	1%	1%
None	27%	7%
Don't Know	3%	0%
Other	5%	6%

*Base: 1948 app dev professionals building server apps and programming in Java
† Base: 218 app dev professionals building server apps and programming in Java at least 50% of the time
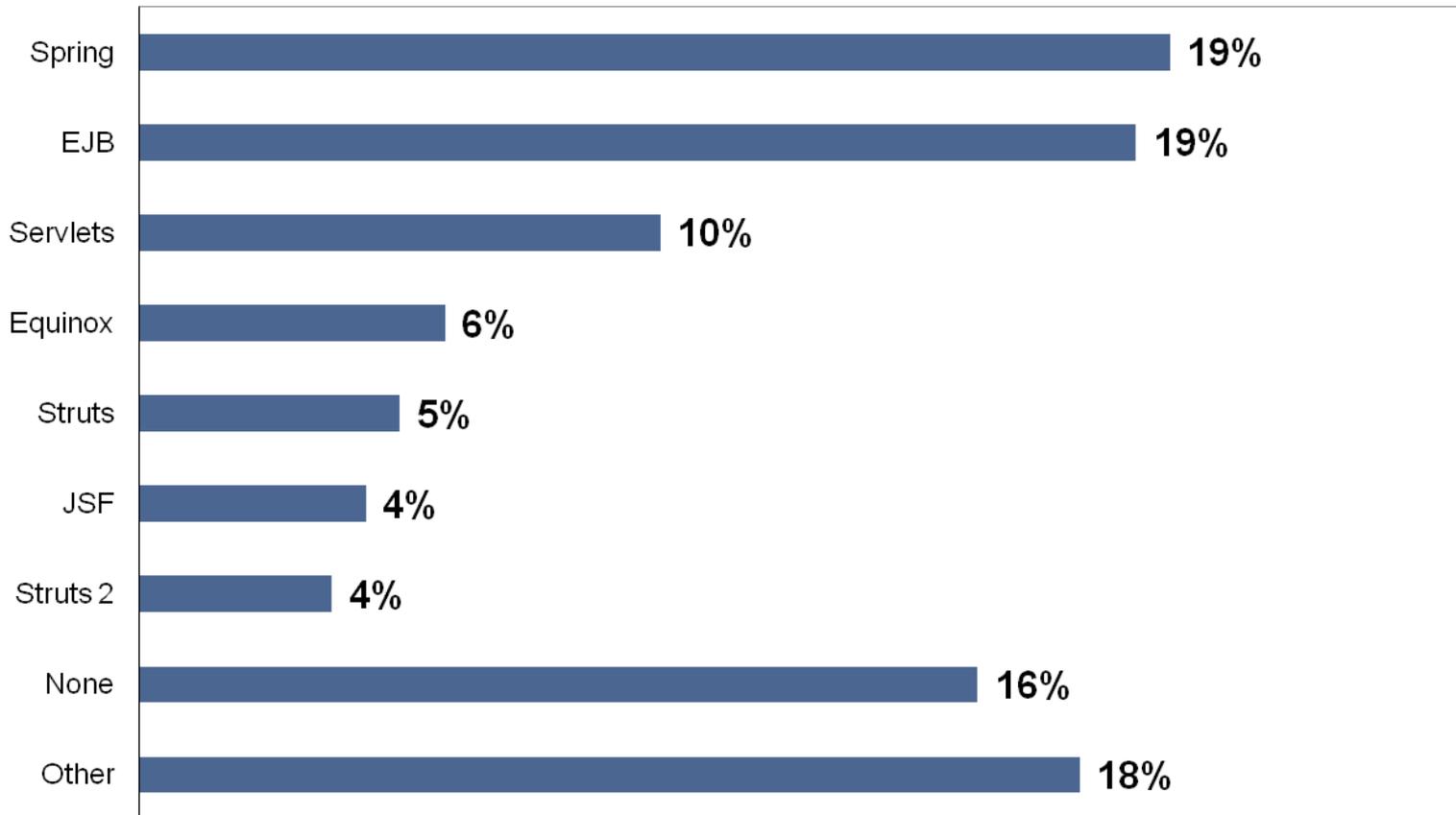
*Source: 2010 Eclipse Community Survey
† Source: Forrester -Dr. Dobbs 2009 Developer Technographics, Q3 2009

At the DBMS level

"What is the primary app server you typically use for deployed applications?" (Choose one.)

	Eclipse*	Dr. Dobbs†
MySQL	28%	15%
Oracle	19%	17%
SQLServer	7%	32%
PostgreSQL	10%	5%
DB2	4%	4%
Sybase	1%	2%
None	13%	18%
Other	6%	7%
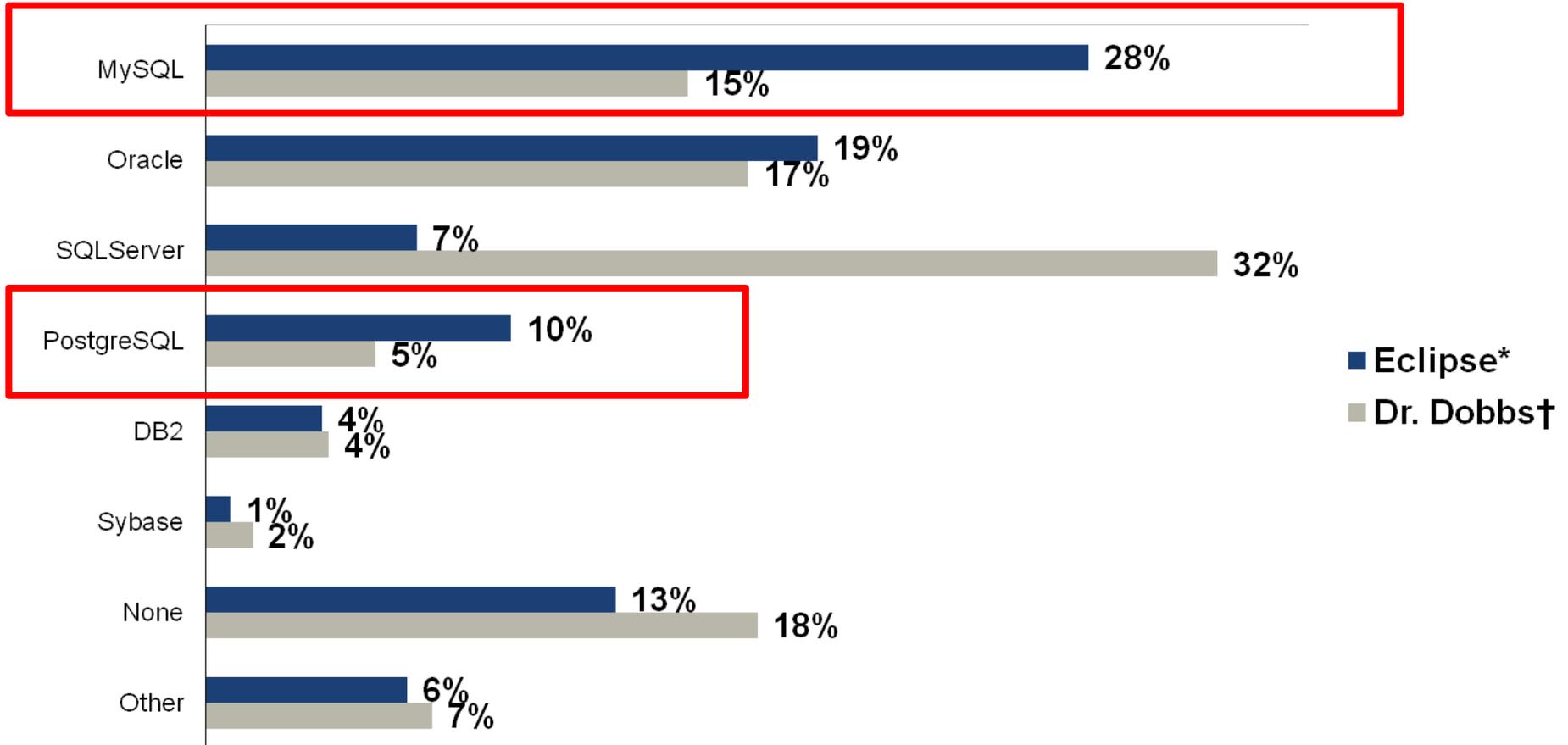
*Base: 1948 app dev professionals building server apps and programming in Java
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*Source: 2010 Eclipse Community Survey
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At the Framework level

"What is the <u>primary</u> server framework you use for deployed applications?"

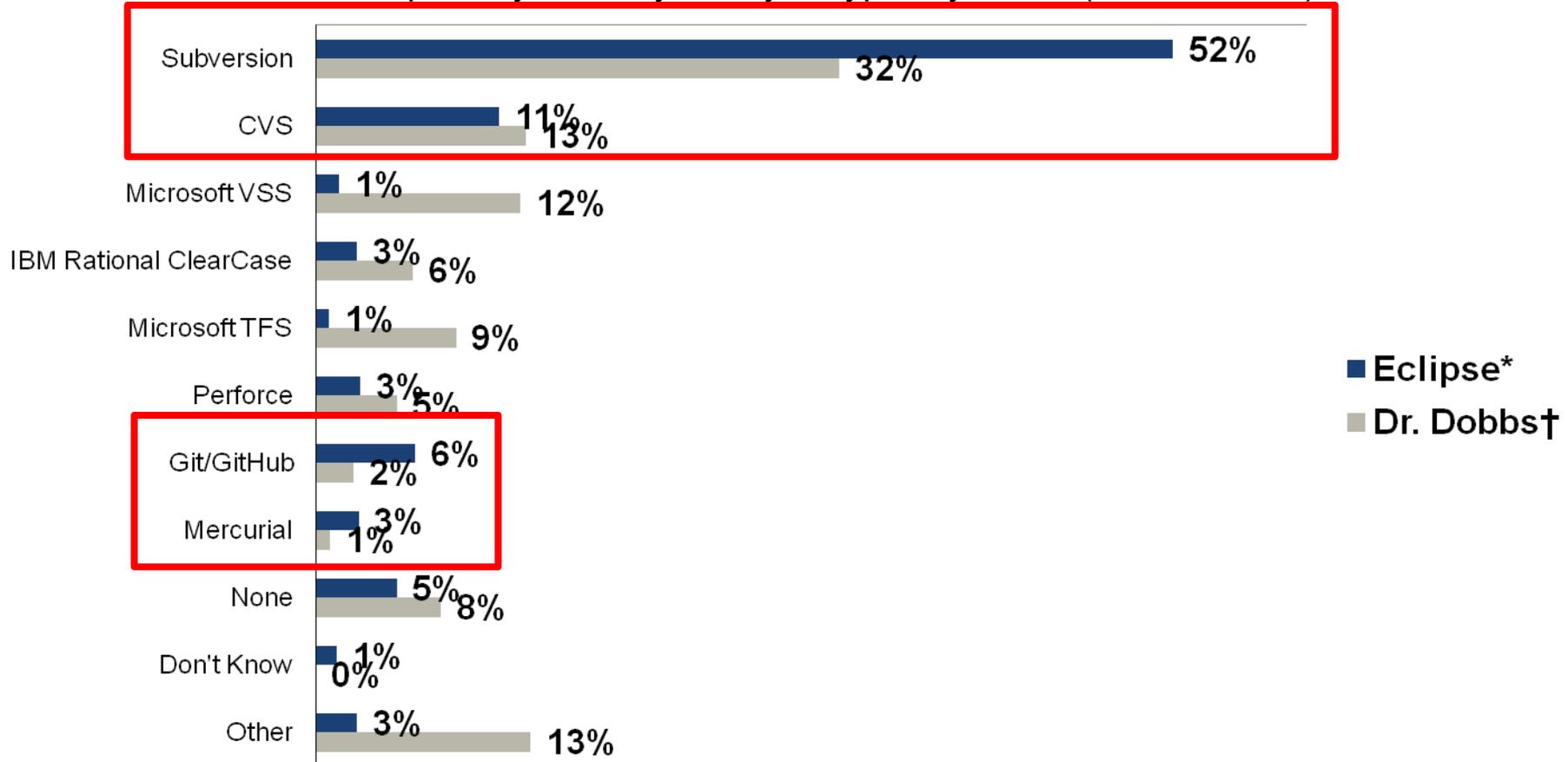| Framework	Percentage
Spring	19%
EJB	19%
Servlets	10%
Equinox	6%
Struts	5%
JSF	4%
Struts 2	4%
None	16%
Other	18%

Base: 469 app dev professionals building server apps and programming in Java

Source: 2010 Eclipse Community Survey (data pending)

At the SCM level

"What is the primary SCM system you typically use?" (Choose one.)

	Eclipse*	Dr. Dobbs†
Subversion	52%	32%
CVS	11%	13%
Microsoft VSS	1%	12%
IBM Rational ClearCase	3%	6%
Microsoft TFS	1%	9%
Perforce	3%	5%
Git/GitHub	6%	2%
Mercurial	3%	1%
None	5%	8%
Don't Know	0%	1%
Other	3%	13%

*Base: 1,948 application development professionals
† Base: 1,298 application development professionals

*Source: 2009 Eclipse Community Survey
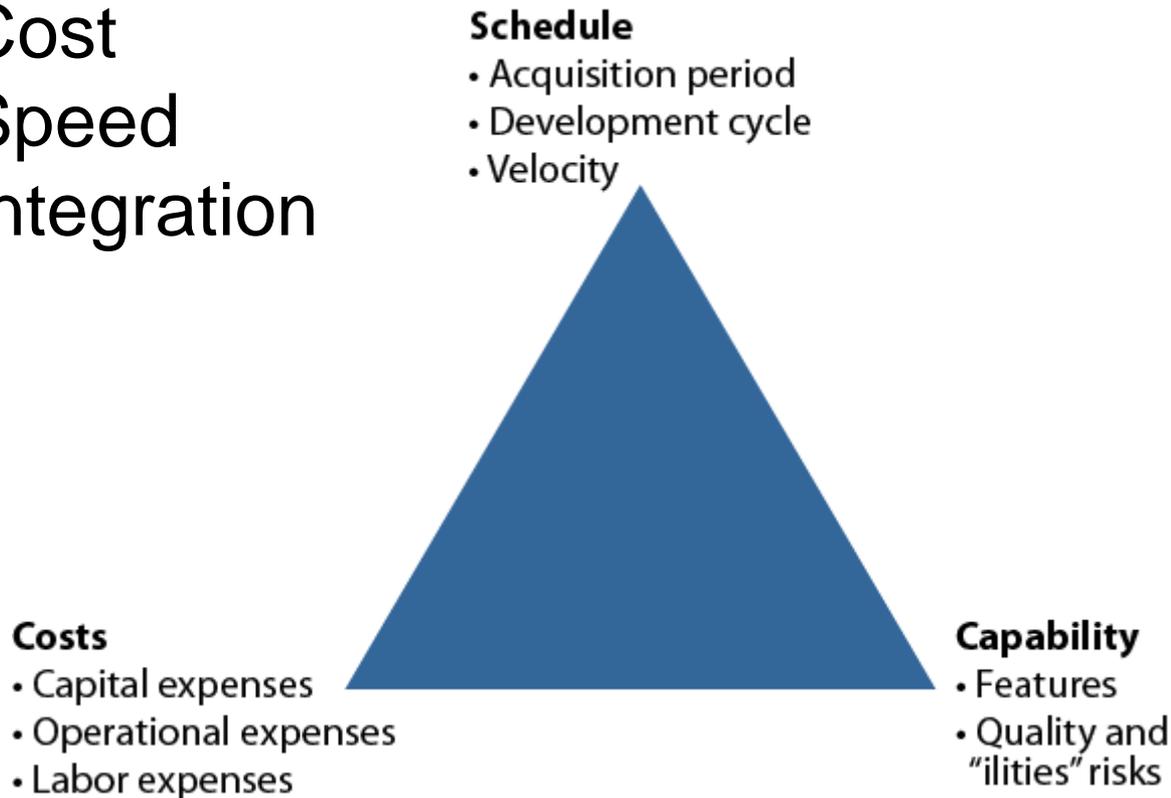† Source: Forrester -Dr. Dobb's 2009 Developer Technographics, Q3 2009

Why is OSS growing? Developers drive adoption of OSS

The software "iron triangle"

1. Cost
2. Speed
3. Integration

Schedule
- Acquisition period
- Development cycle
- Velocity

Costs
- Capital expenses
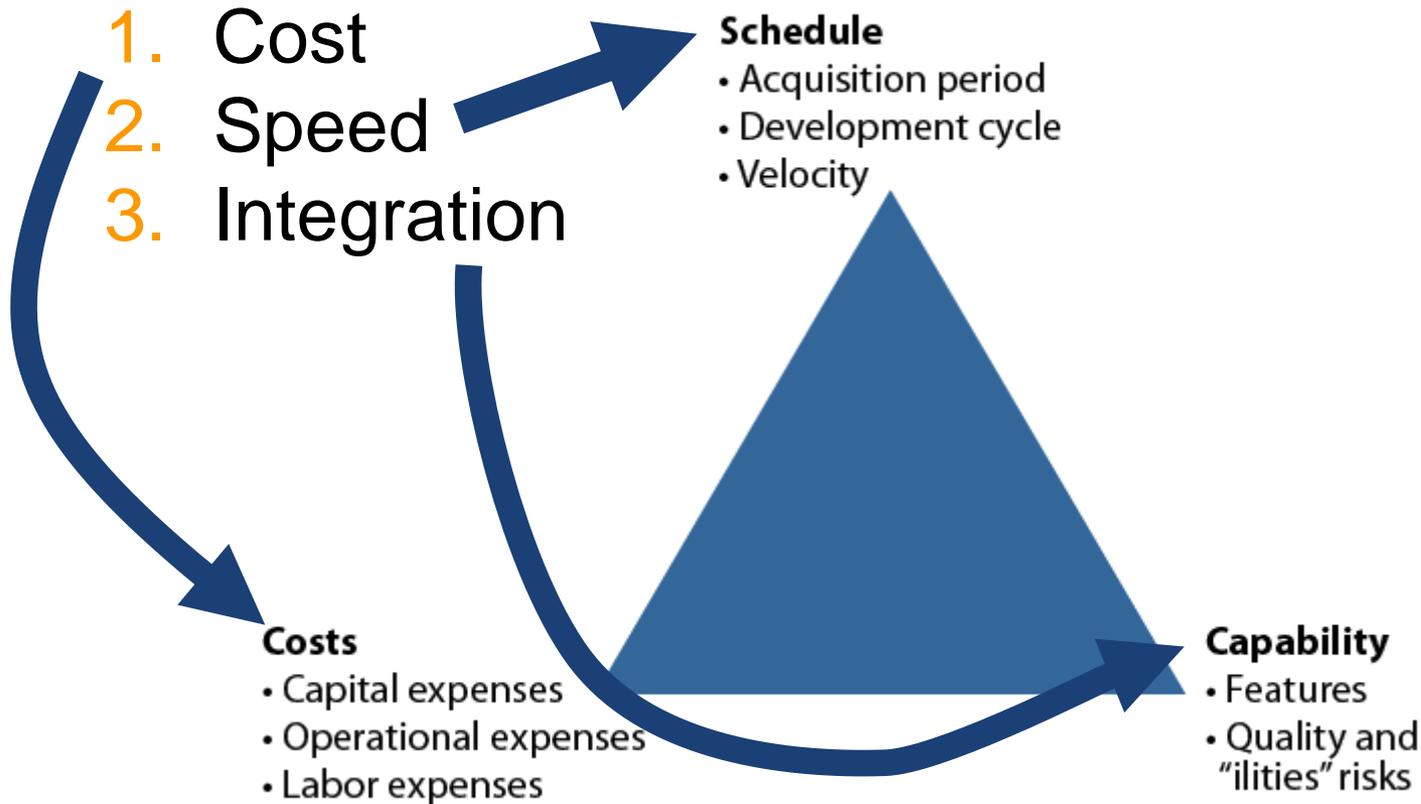- Operational expenses
- Labor expenses

Capability
- Features
- Quality and "ilities" risks

Source: February 2, 2009, "Best Practices: Improve Development Effectiveness Through Strategic Adoption Of Open Sou[...]
Forrester report

Why developers drive adoption of OSS

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Source: February 2, 2009, "Best Practices: Improve Development Effectiveness Through Strategic Adoption Of Open Sou Forrester report

A Case Study in OSS - Sabre

Leading provider of technology and marketing services for the travel industry

- Rewrote z-based reservation app using scale-out arch with Linux, Tomcat, FUSE – now running at peak volumes on 200 M+ tpd

- Need to make investments in architectural competency

- Acquisition policy "OS first, buy next, build last".

- Took three tries to get it right

- Anticipate higher costs of training, risks of proliferation

- Always buy support for production (at first)

Result: Saving millions over multiple years vs. mainframe environment.

Case study: What Sabre discovered with long term use
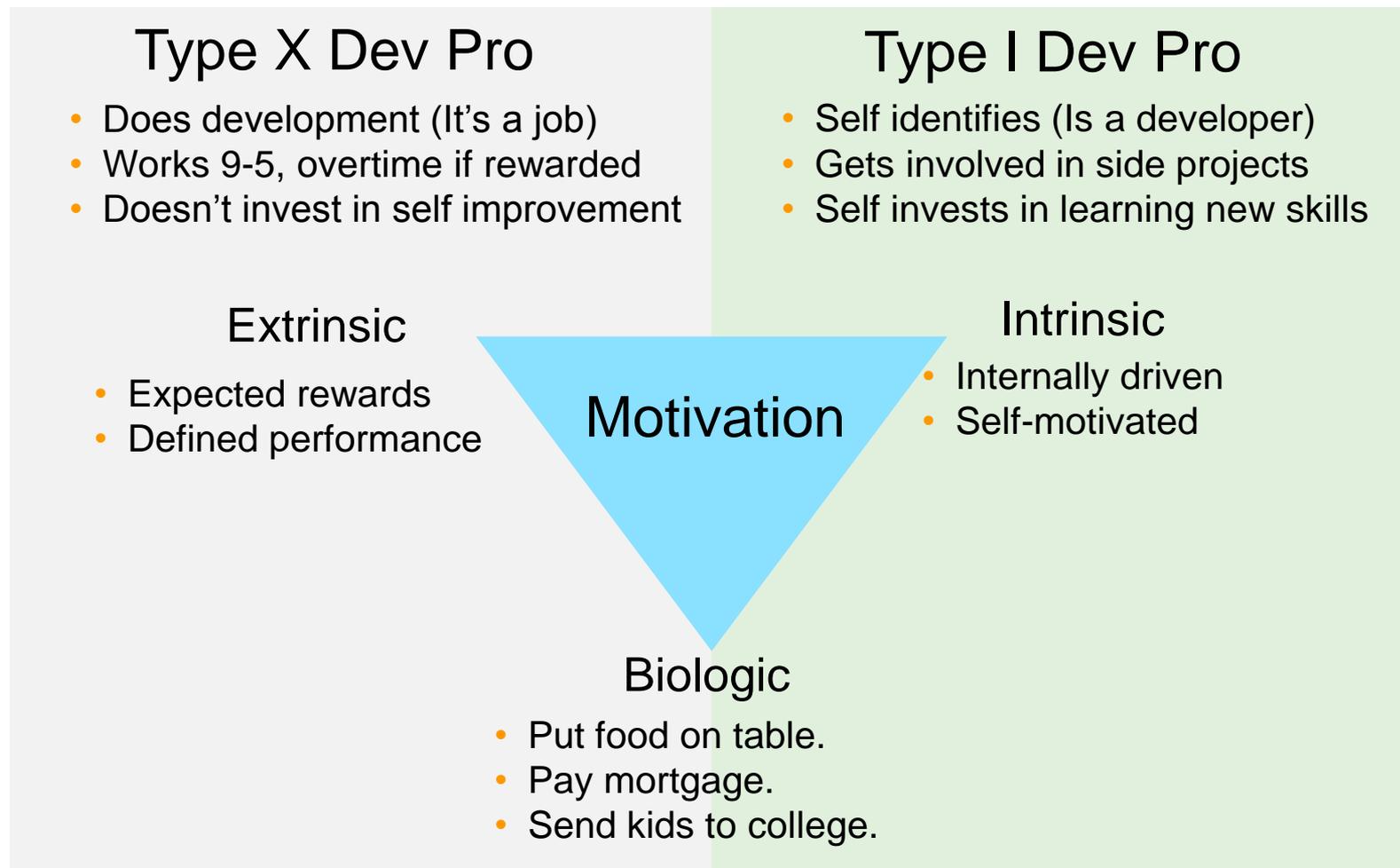
Long term use of OSS is not just about cost!

- Using OSS engages developers, creates intrinsic motivation

- Increased sense of ownership over the code

- Improved mix of creative devs <-> solid devs

- Organization has flattened out over time

- Developers are thinking more strategically

- Developing an "open contributor" culture

- Improved staffing flexibility as projects cross-pollinate

Three archetypes of development

	Solid utility	Trusted supplier	Partner player
Metaphor	Manufacturing line	General contractor	Craft shop
Staffing	Resources are interchangeable.	Resources are specialized.	Individuals are stars.
Org. structure	Application silos	Functional silos	Cross-functional teams
Processes	IT infrastructure library (ITIL)	CMMi	Lean
Funding	Shrinking	Constant	Expanding
Technologies	Necessary technology	Standard technology	Leading-edge technology

Strategic Use Of OSS →

OSS Leads To More "Type I" Developers

Type X Dev Pro

- Does development (It's a job)
- Works 9-5, overtime if rewarded
- Doesn't invest in self improvement

Type I Dev Pro

- Self identifies (Is a developer)
- Gets involved in side projects
- Self invests in learning new skills

Extrinsic

- Expected rewards
- Defined performance

Motivation

Intrinsic

- Internally driven
- Self-motivated

Biologic

- Put food on table.
- Pay mortgage.
- Send kids to college.

Source: Adapted from Daniel H. Pink, *Drive: The Surprising Truth About What Motivates Us*, Riverhead Hardcover, 2009

Partner players oganizations get lean with OSS

Strategic:
Understanding value

Operational (toolbox):
Eliminating waste

Lean Thinking

Product Orientation

Lean Software

Agile Approaches

People that do it

Processes they follow

Programming models

Run time environments

Enabling Environment
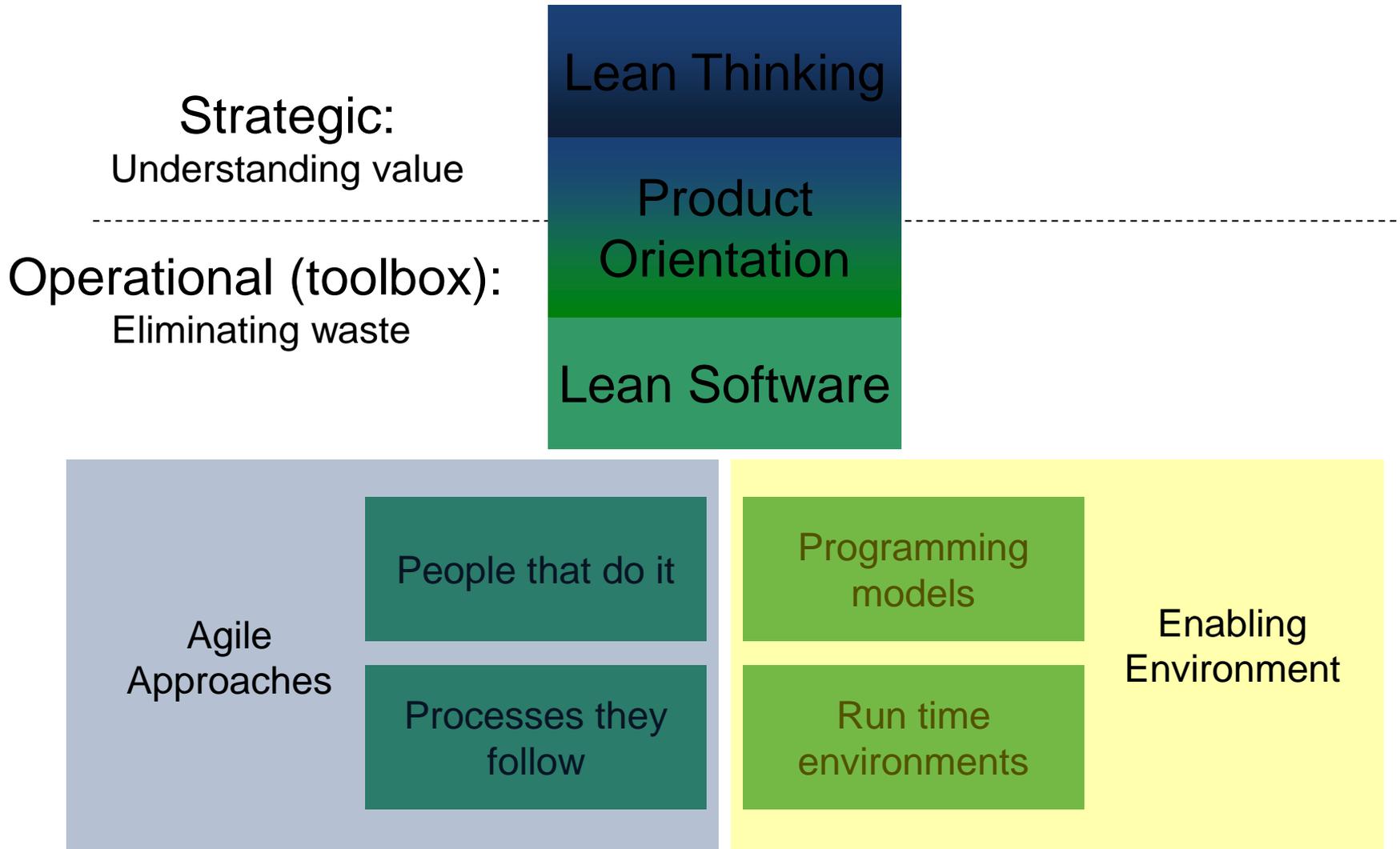
What it means – Looking ahead

- Open source adoption saves money, but also attracts developers

- Business critical OSS systems exist; they work and they scale

- Most IT shops still don't understand or value the long term benefits of OSS

- Focus on building on organization where secondary virtues of OSS can be realized

- It's not really about the Cathedral OR the Bazaar – it's more about a mixed source combination

- OSS will be a key enabler of leaner, faster, more flexible applications

Thank you

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