



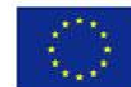
LEADERSHIP SCHOOL

Preparing Higher Education leaders to become the change makers of the university of tomorrow

The Promise and the Reality of Analytics

15/11/2016

Anne Boyer – Université de Lorraine



Co-funded by the
Erasmus+ Programme
of the European Union



Who am I?



Professor in computer science, Université de Lorraine

57,000 students

Head of the KIWI (knowledge, Information and Web Intelligence)
of the LORIA laboratory (<http://www.loria.fr>)

President of the UNIT Foundation (<http://www.unit.eu>)

Coordinator of the national e-FRAN METAL project (Learning
Analytics & Adaptive Learning for secondary schools)

Co-author with Geoffray Bonnin for ICDE of “Higher Education
and the Revolution of Learning Analytics”, Nov.2016



Azim Roussanaly

senior advisor on ICT enhanced learning

senior researcher, KIWI team

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in charge of the Bachelor degree “digital and humanities
applied to cognitive science”

senior researcher, KIWI team

Université de Lorraine





from M. D. Pistilli, EDUCAUSE 2015



from M. D. Pistilli, EDUCAUSE 2015







Learning Analytics:
a “green card” to become a digital
resident in e-education



Educational Landscape Today

- Growing need for education
 - 100M students more in 2025
 - job market requirements
 - Life Long Learning (5 jobs in your life)
- Active learning & Adaptive Learning
- Education defunding



From Dragan Gasević
September 2016

Educators

Learners

Student
Information
Systems

Mobile

Network

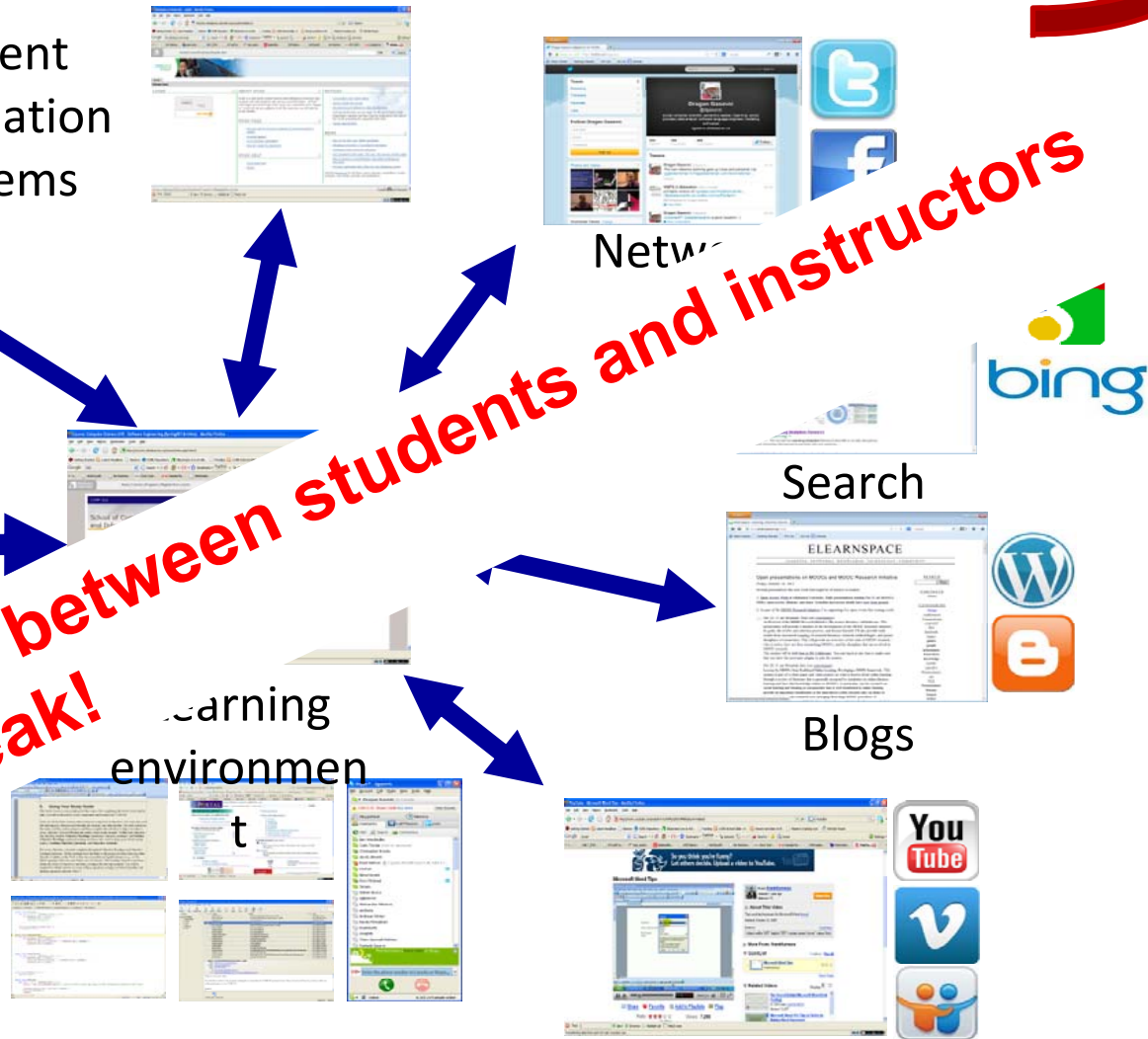
Search

Blogs

Learning
environment

Videos/slides

**loops between students and instructors
are missing/weak!**





Analytics and behaviour prediction

corpora of digital traces, user behaviour

analysis/prediction, personalized recommendation

AI, datamining, machine learning, Big Data

E-commerce

user=customer

homogeneous traces

basket

short term

“poor” impact of decision

performances of algorithms

E-education

user=learner

complex traces

educational path

short, mid and long term

strong impact of decision

performances of algorithms

e-commerce ≠ e-education



Definition of Learning Analytics

“the **measurement, collection, analysis and reporting** of data about learners and their contexts, for purposes of understanding and optimizing learning and the environments in which it occurs” (Long and Siemens 2011)





Digital traces?

192.168.0.5 - - [15/Feb/2008 :15 :52 :32 +0100] "GET http://www.-sop.inria.fr/axis/index.html HTTP/1.1 »

192.168.0.3 - - [15/Feb/2008 :15 :56 :20 +0100] "GET http://kiwi.loria.fr/membres/index.php HTTP/1.1" - -

192.168.0.5 - - [15/Feb/2008 :17 :20 :44 +0100] "GET http://kiwi.loria.fr/index.html HTTP/1.1" - -



Année1

Ecole Primaire Jules Ferry		Nom :	Martin	Année scolaire	2007-2008
		Prénom :	Pierre	Mois de :	Septembre à décembre
		Né(e) le :	01.01.1999	Classe :	CM 2 A

Relevé de notes

Calcul		20	/20	Français		
Décrire une image/10		8	/10	29	Moyenne Française /20	15.32
expression/20		15	0	29	Moy Classe Français /20	0
Ecriture/40		33.5	/40	Mathématiques		
écriture arrondie/40		33.5	0	33	Conn des Nbr /20 -	17.8
lecture/10		7.5	0	39	CALCUL /20 - arrondi	16.0
lecture 2 /10		10.00	0	41	problème /20	17.0
lecture 3 /10		10.00	0	51	GEOMETRIE /20	19.2
lecture 4 /10		4.80	0	Autres Disciplines		
Calcul mental /20		7	0	56	Sciences/20	16.30
Voca /10 - contrôle		6	0	57	Histoire /20	15.75
grammaire /20		16	0	58	Géographie /20	17.67
Gram/10 - contrôle		8	0	59	Anglais/20	19.00
conjugaison /20		16.5	0	60	TOTAL Eveil /80	68.52
Conj/10 - contrôle		7	0			

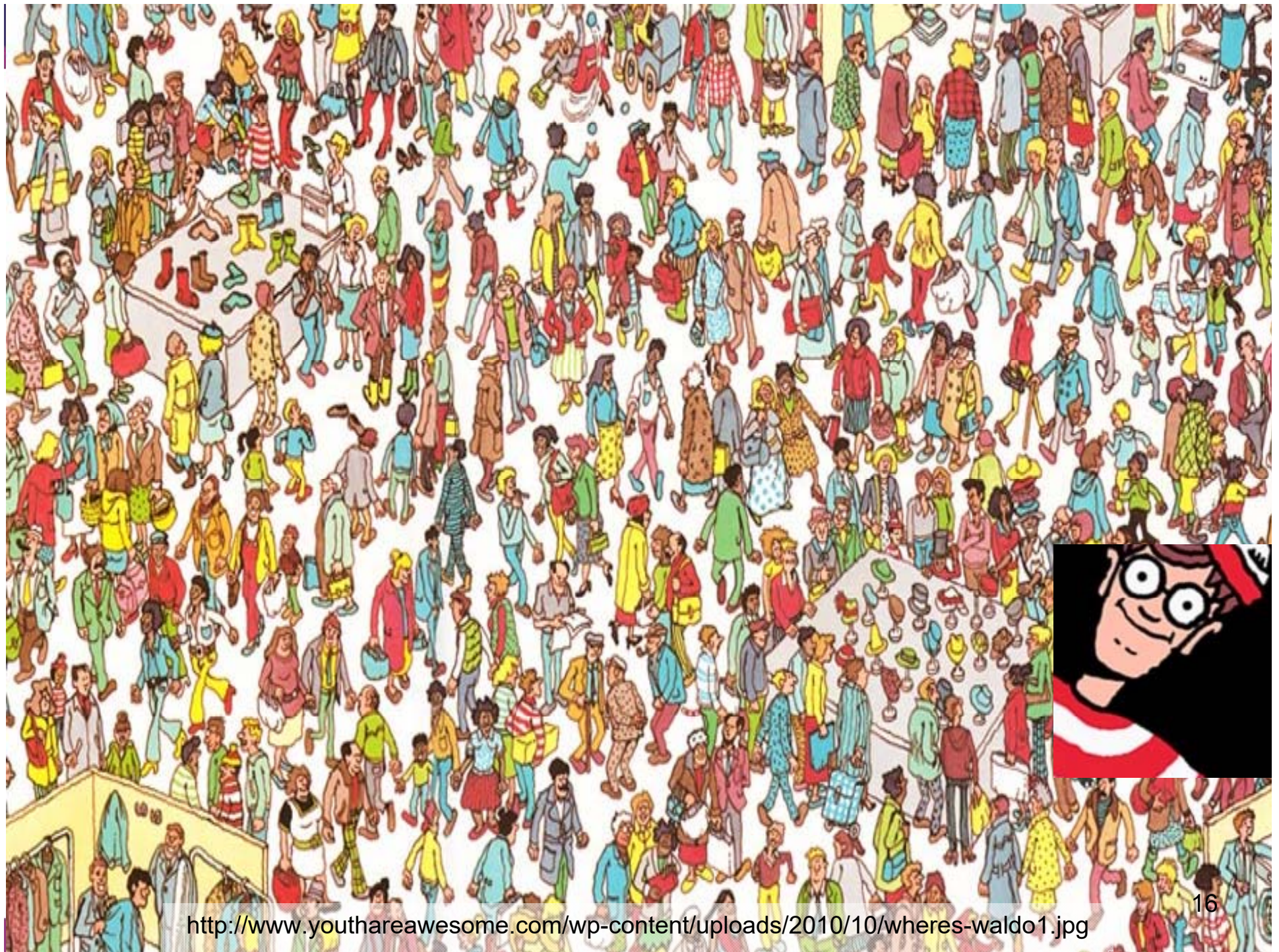




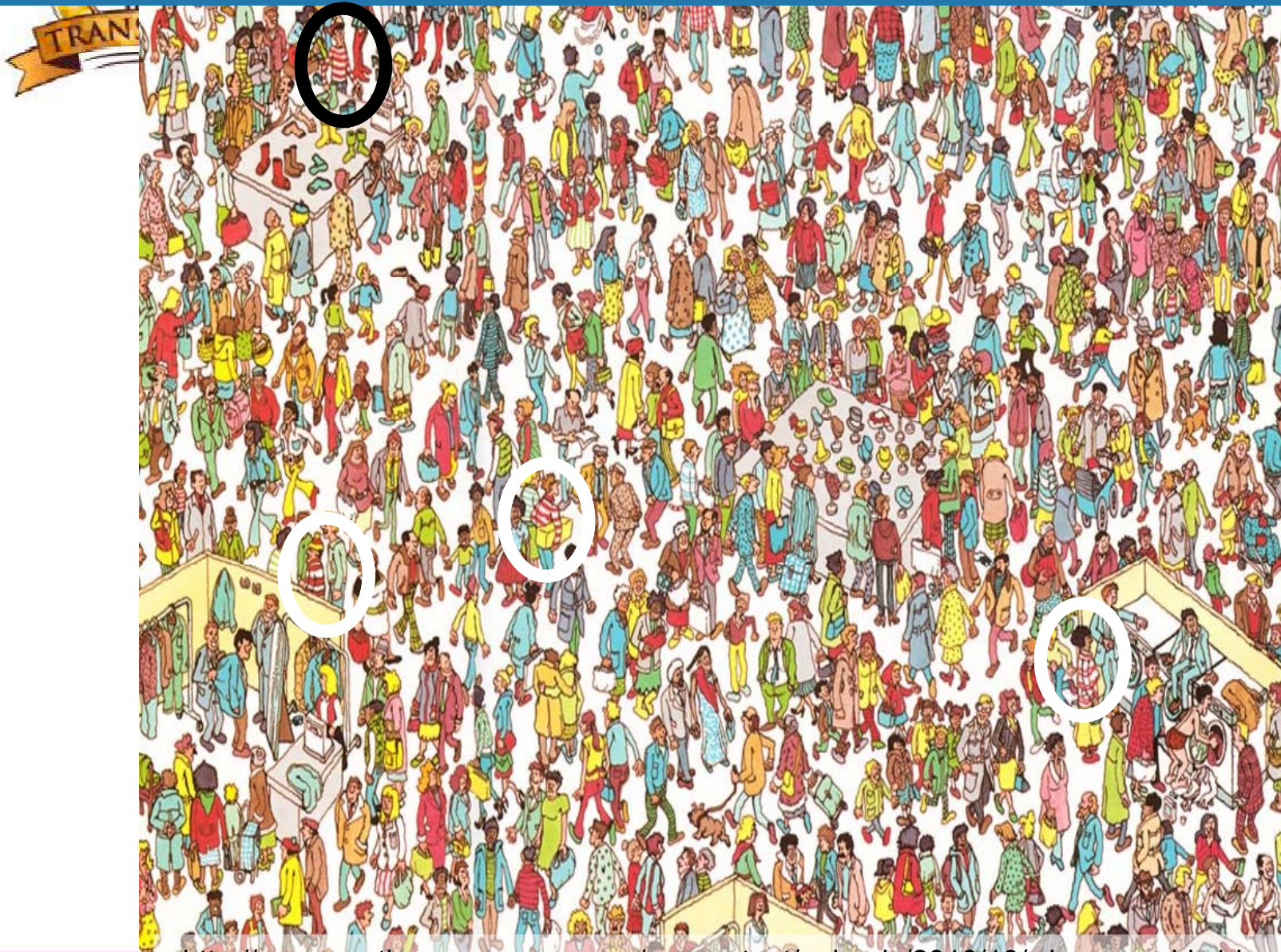
- **Why to embed Learning Analytics in your institutional strategy?**
- **Is your institution ready for Learning Analytics?**



Why to embed Learning Analytics
in your institutional strategy?



Challenge 1: how to detect an “at-risk” student?

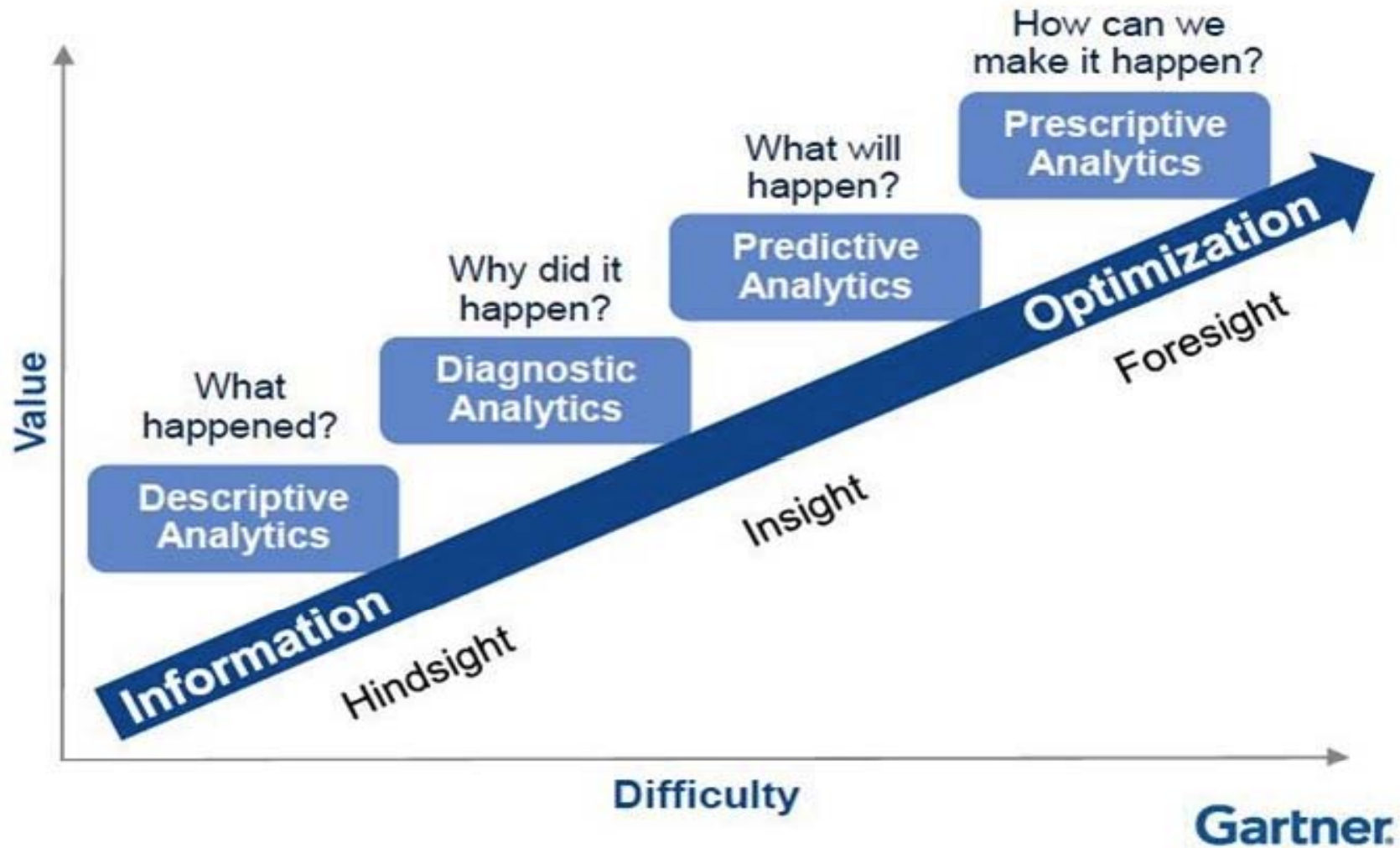








Approaches





Some issues

What can institutions do to improve student success?

Detect at-risk students

Alert a teacher to the difficulties encountered by a student or a class

Estimate which pedagogical interventions have or may have the most impact

Recommend educational resources

...



Other issues

How can institutions help students take advantage of existing campus resources?

What existing information on campus can be utilized to better identify students at risk?

How can institutions retain students?

How can students become self-aware of what effort is necessary to be successful in college?

How can analytics make a strategic impact at scale?

...



and some results ...

Giuseppe Abamonte, from the European Commission

« there were considerable opportunities in learning analytics, citing improvements of 30% in educational achievement in US universities adopting these techniques »

(in <https://community.jisc.ac.uk/blogs/regulatory-developments/article/learning-analytics-oecd-and-eu>)