

Atelier A - Ecoles-entreprises

Preparer l'Europe pour l'Avenir



Mettre en oeuvre les coopérations possibles entre monde éducatif, Etat et monde de l'entreprise pour développer l'innovation. Européenne
Resoudre le EU Skills Mismatch par des Platforms Nationaux de STEM

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Ambassadeur du projet EU STEM Coalition
hans@energyandstuff.org

Erasmus Days 2017
Journée d'étude – AEDE France
14 Oct 2017 – Lycée Jean Zay, Paris

TALENT

SECURITY

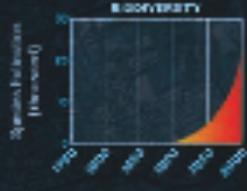
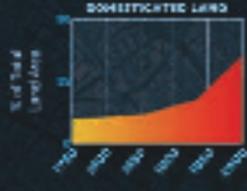
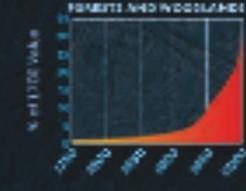
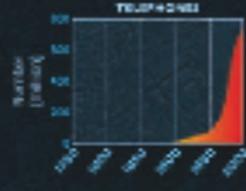
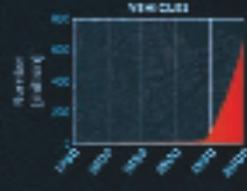
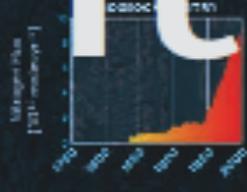
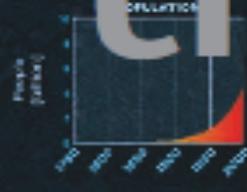
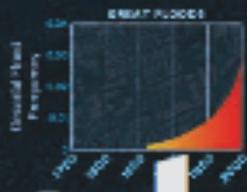
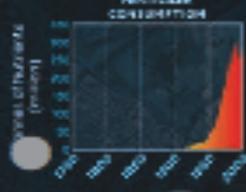
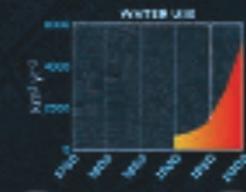
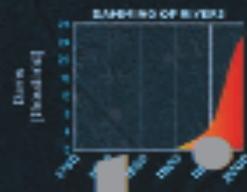
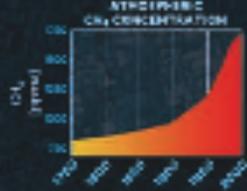
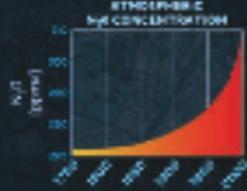
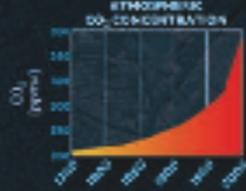
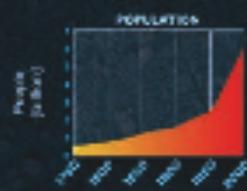


CARBON

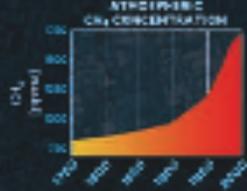
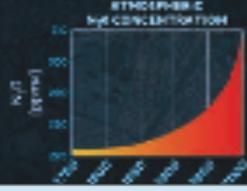
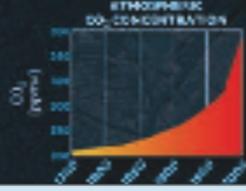
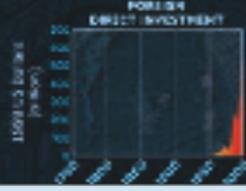
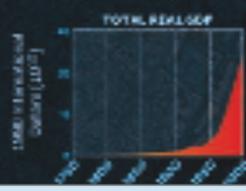
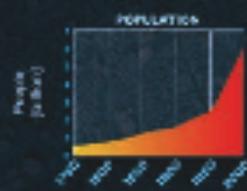
RESOURCES

TECHNOLOGY

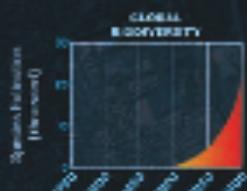
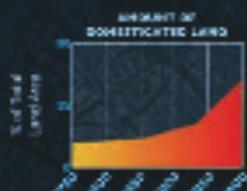
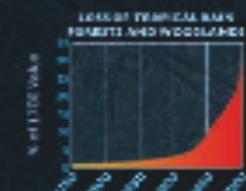
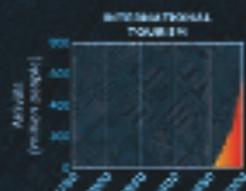
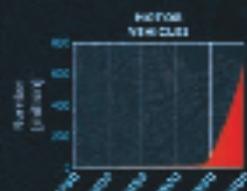
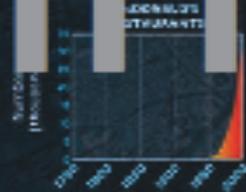
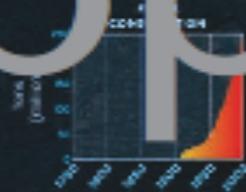
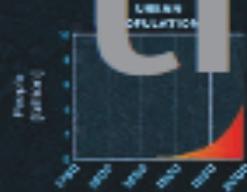
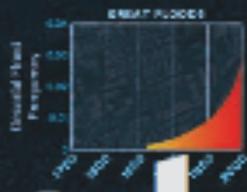
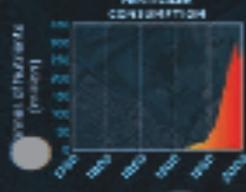
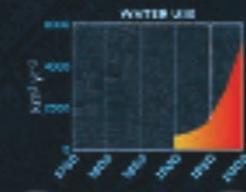
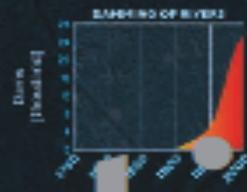
ENERGY



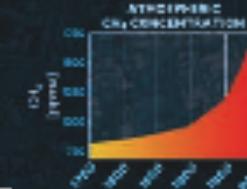
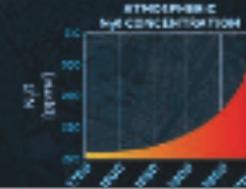
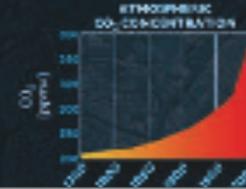
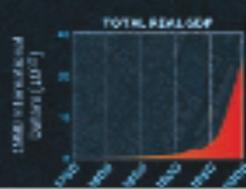
tipping point



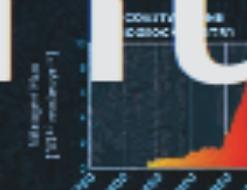
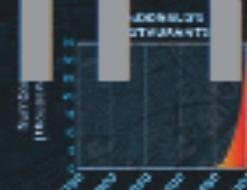
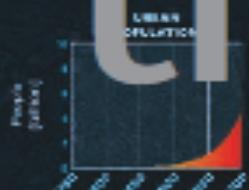
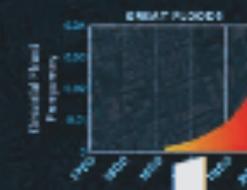
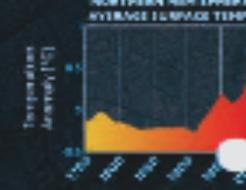
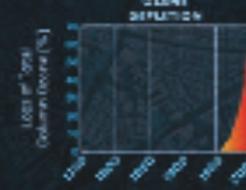
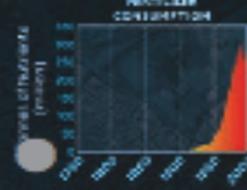
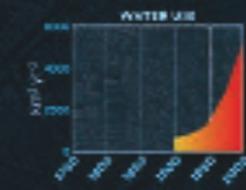
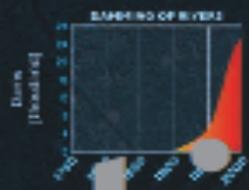
Defis 21 siecle visible sur Tableau de Bord de la Planete Bleue



tipping point

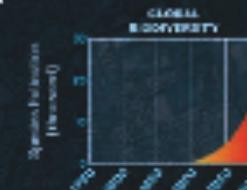
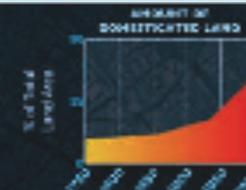
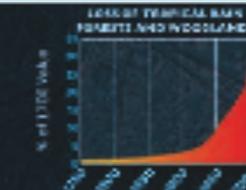
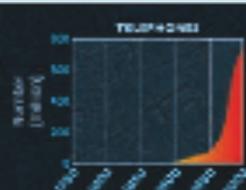
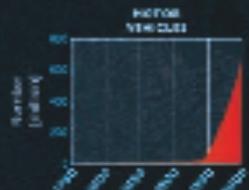


Defis 21 siecle visible sur Tableau de Bord de la Planete Bleue



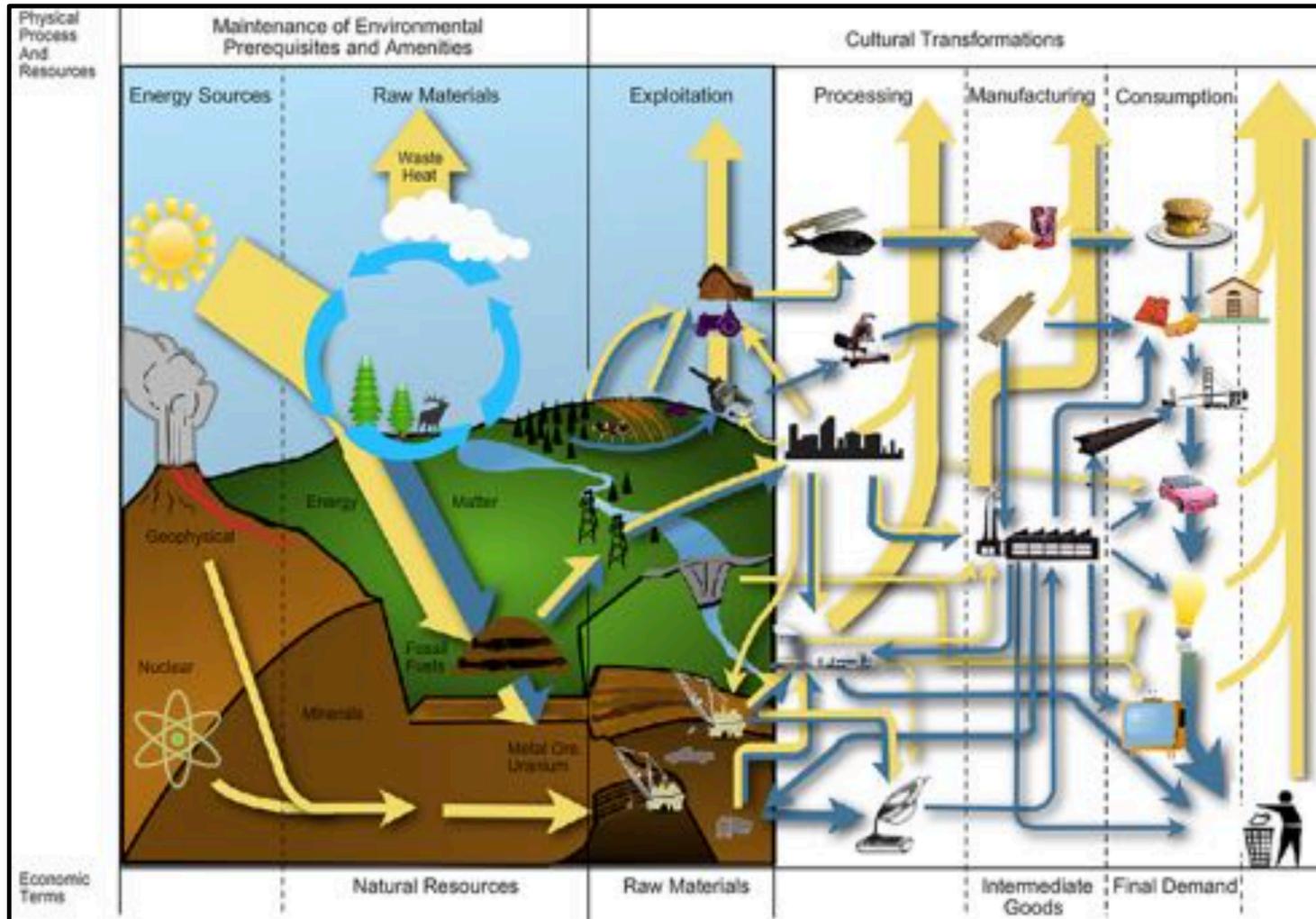
tipping point

Houston, nous avons un probleme !



La Réalité Complet

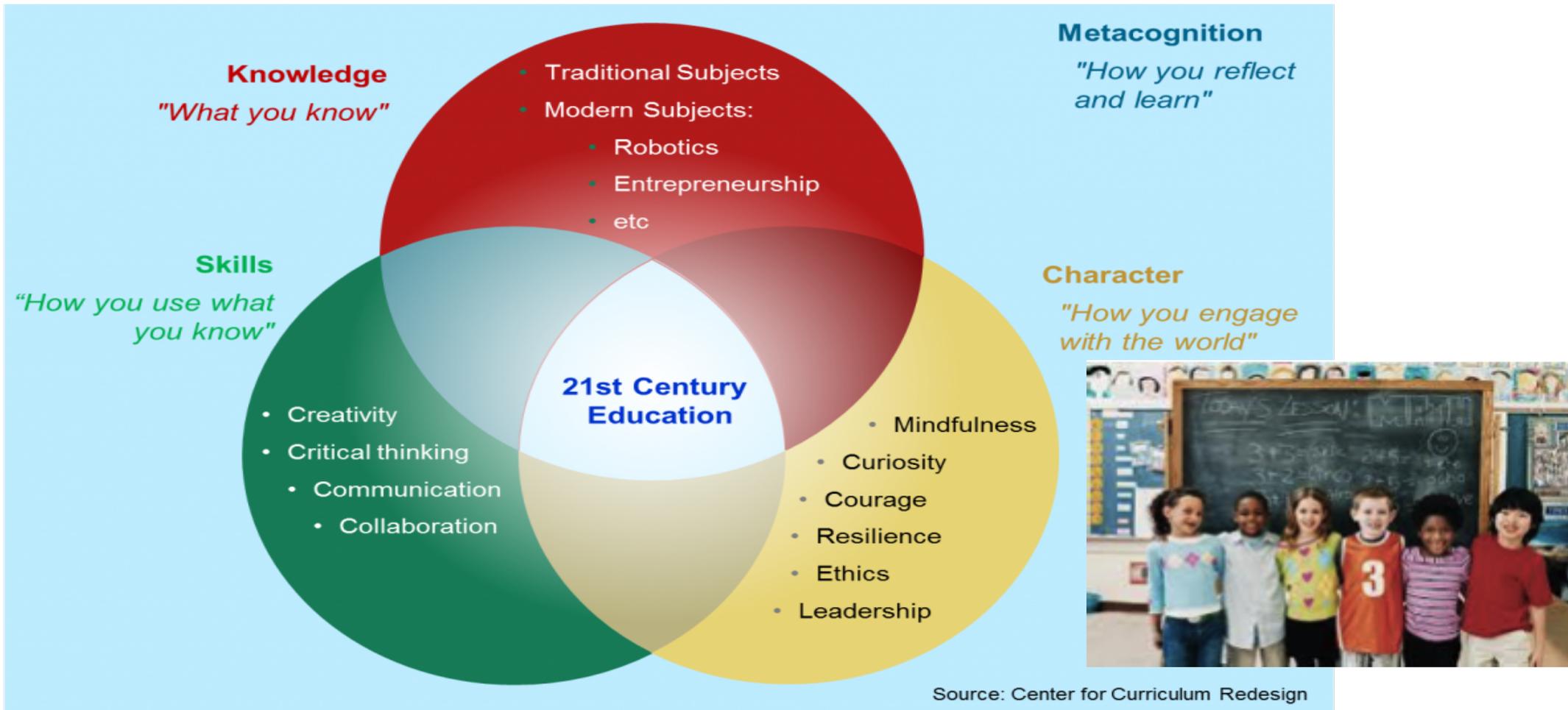
Des Ressources Naturelles vers un Transformation Culturel



10/11,

<http://www.ngei-usa.org/economics>, after Hall CAS and Klitgaard KA (2011) Energy and the Wealth of Nations, Springer

Compétences de 21^{ème} siècle pour répondre au Defis 21^{ème} siècle



Nous préparons nos jeunes pour des postes que n'existent pas encore, pour résoudre des problèmes, dont nous sommes pas encore conscient !

Sans compétence STEM il est difficile a valoriser des autres compétences

Les complexités du XXIe siècle demandent la compréhension sySTEMique de base.

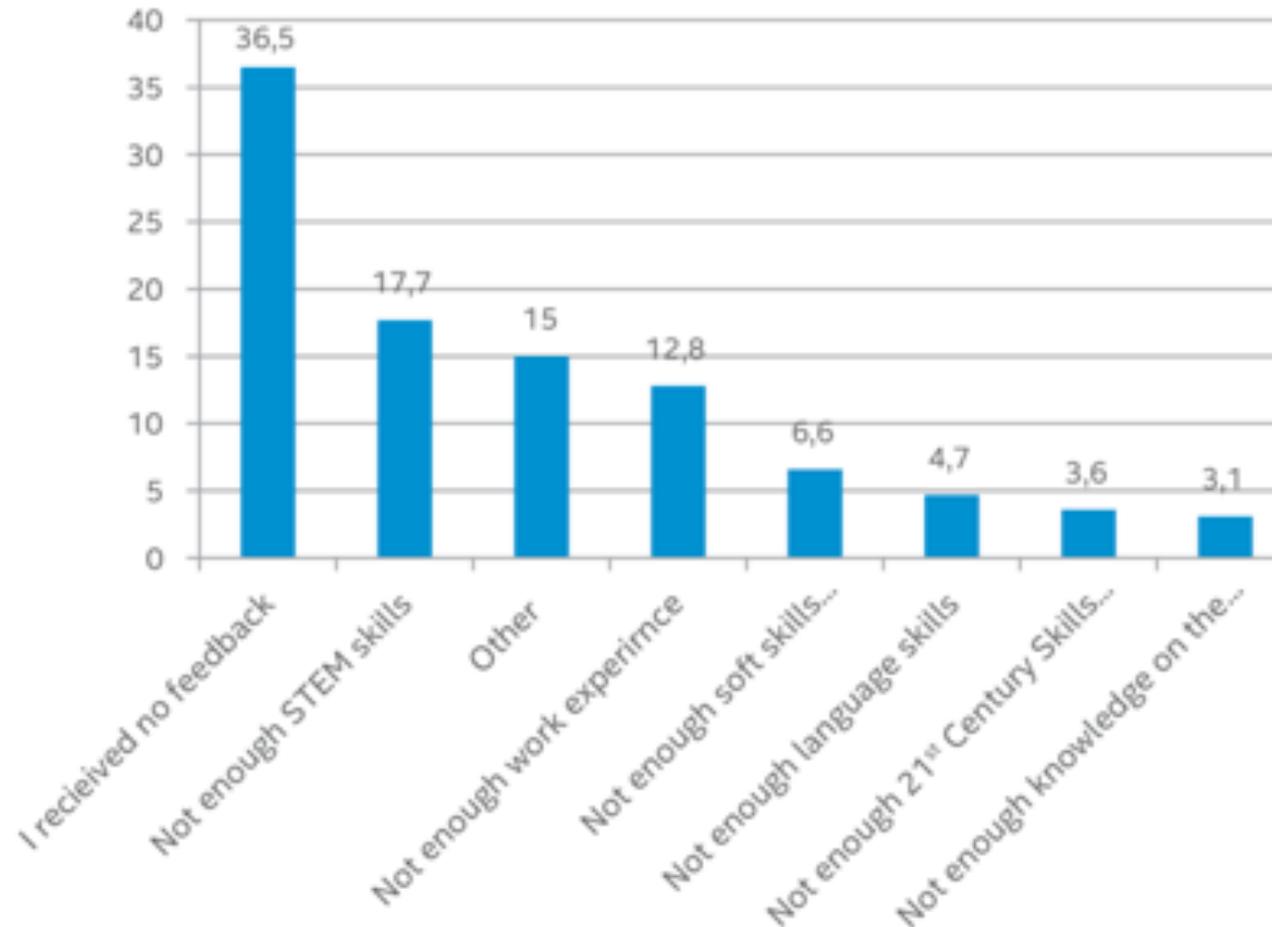


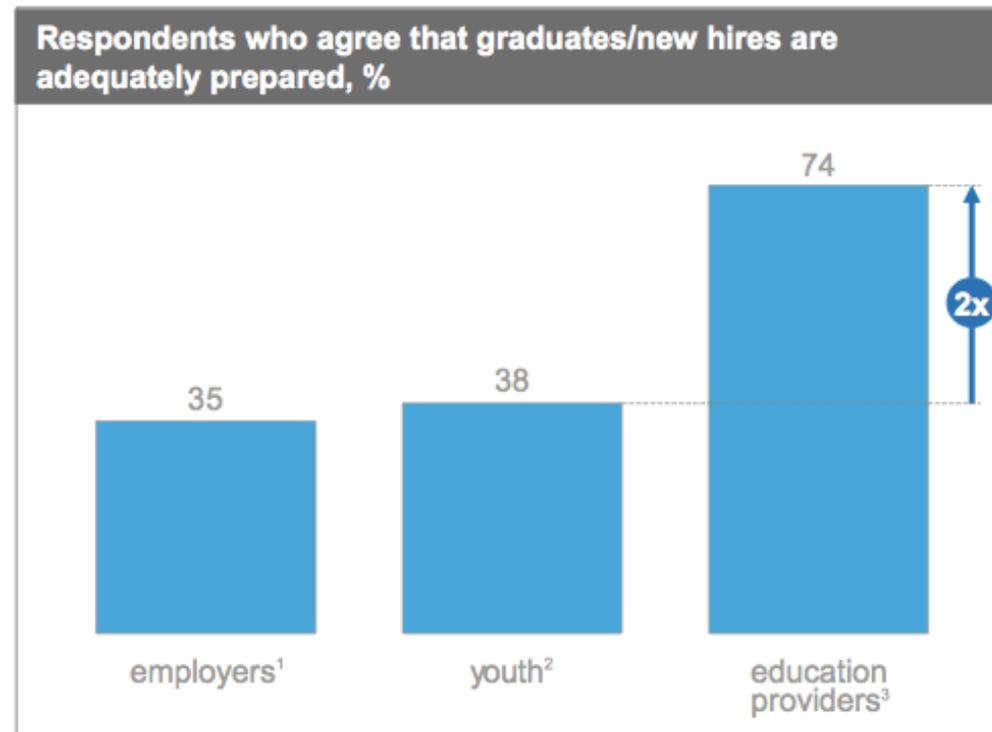
Figure 11 - Respondent's answer to the feedback received from a negative job interview

Etre lié au réalité d'aujourd'hui et demain

Décalage surprennant entre perception de réalité entre écoles, étudiants et employeurs ?

Exhibit 24

Providers are twice as likely as employers and youth to rate youth as prepared



¹ Overall, the entry-level employees we hired in the past year have been adequately prepared by their prehire education and/or training.

² Overall, I think I was adequately prepared for an entry-level position in my chosen career field.

³ Overall, graduates from my institution are adequately prepared for entry-level positions in their chosen field of study.

Source: McKinsey survey, Aug–Sept 2012, 2013



Platform National STEM (2004-aujourd'hui)

But : Plus de capacité de pensée holistique & systémique

Moyen : Informer et enthousiasmer plus de jeunes pour STEM

Four out of Ten go for STEM (4 sur 10 font STEM)

L'essentiel : Support par triple Helices [Trois Mousquetaires]

→ **Gouvernement** : National-Regional-Local

→ **Ecoles** : le long du Talent Pipeline : primaire-secondaire --> supérieur/uni

→ **Entreprises** : en partenariat public-privé

Les conditions pour la réussite :

→ Engagement à longue durée : pour développer la Confiance et l'Expérience

→ Idée du "Commons" : Intérêts communs + mutuels + interdépendants

➤ Autres exemples : "Pact Technology" + "Pact Santé"

Technology Pact

Exemple Pays Bas



3 Axes avec 22 actions nationaux :

- **Choisir** Science & Technology
- **Etudier** Science & Technology
- **Travailler** en Science & Technology

Supplémenté par un approche Régional

CEE : Collaboration “Ecoles + Entreprises”

- **Engagement des deux cotes** : Temps & Initiatives
- **Liens directs** entre ecole & entreprises (partenariat local) et evenements de haute visibilite national
- **Ancrage** des activites **dans le curriculum de l'ecole**. Clarifier des pistes de carrieres lies au entreprises & technology
- **'Les mains dans la pate'** Montrer relevance cotidien et futur de STEM
- **Support & Programmes Nationaux & Execution Local**



Current Programmes of the DUTCH STEM Platform

Primary Education

Secondary Education

Technical and Vocat. Education age 16-18 yrs.

Higher Education

SCHOOL AAN ZET

Toptechniek in Bedrijf



VO-HO netwerken

eerst de klas

Jet-Net
Jongeren en Technologie Netwerk Nederland



inGenious



Sectorplan Natuur- en Scheikunde

Sprint-UP

3TU Sectorplan Technologie

Topsectoren en Masterplan Bèta Technologie

STEM

Excellence

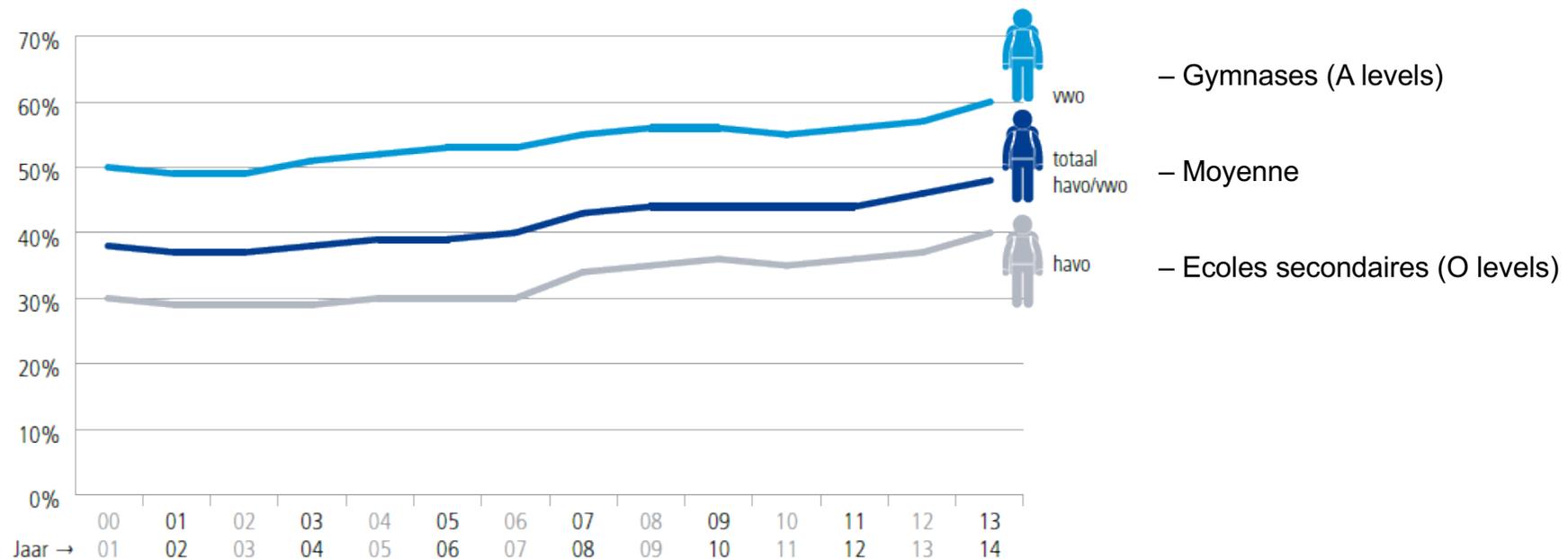
STEM & Excellence

Resultats :

Augmentation % d'élèves choisissant STEM dans les écoles secondaires (age 15)



Proportion d'élèves choisissant profile STEM, relative au total des élèves

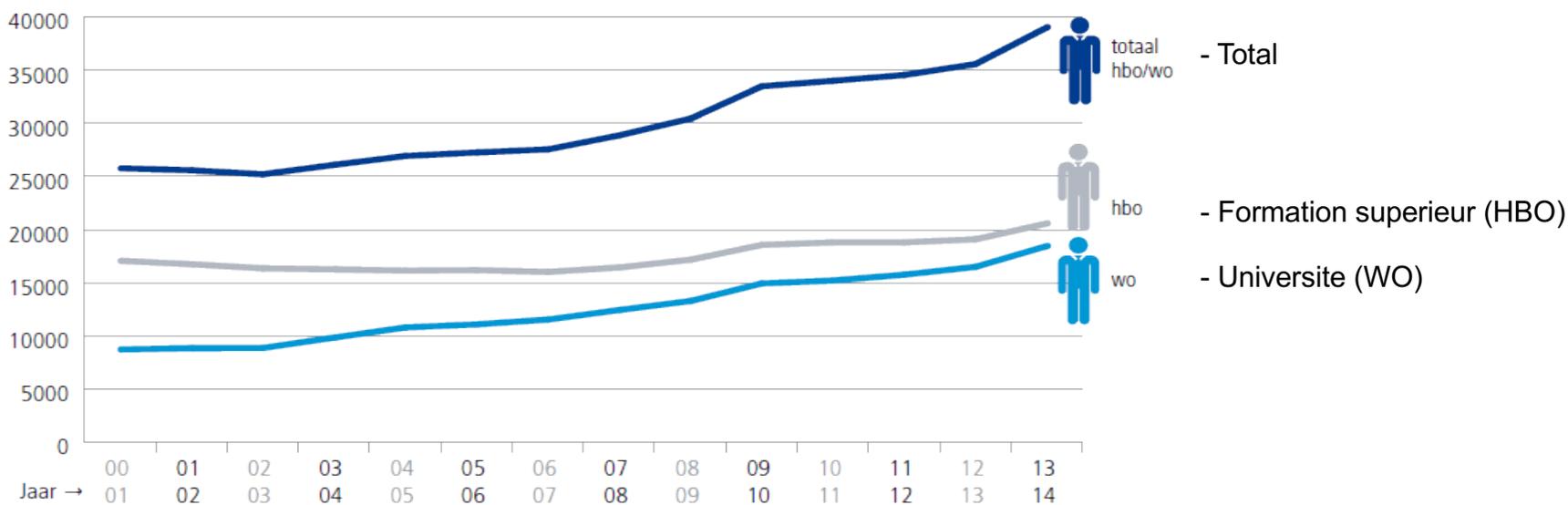


Resultats :

**Forte croissance étudiants STEM aux Universités (wo)
... mais moins fort dans Formations supérieures (hbo)**



Nombre d'eleves entrant facultes STEM : Universites (wo) et Formations superieurs (hbo)



Partager nos experiences :

Un reseau de ressources pour l'Europe

EU STEM Coalition

- Les Pays Bas : **Jet-Net** (+ multiple autres programmes)
- Danemark : **Jet-Net DK** + working on STEM Pact
- Estonie: **Technology Pact**
- Belgique (Flandres): **STEM Platform**
- Expressions d'Interet / en train de developpement : l'Allemagne, Espagne, France, Lithonie, Malte, Royaume Unis, Portugal, Suede

Lancement Octobre 2015

- Partenaires/signataires : CSR Europe, ECSITE, FEANI
- Supporters : CE (DG EAC), ERT (Table Ronde Industrialistes)
- Programmes liées : Pact for Youth (CE DG EMPL, CSR)

Assemblées Générales :

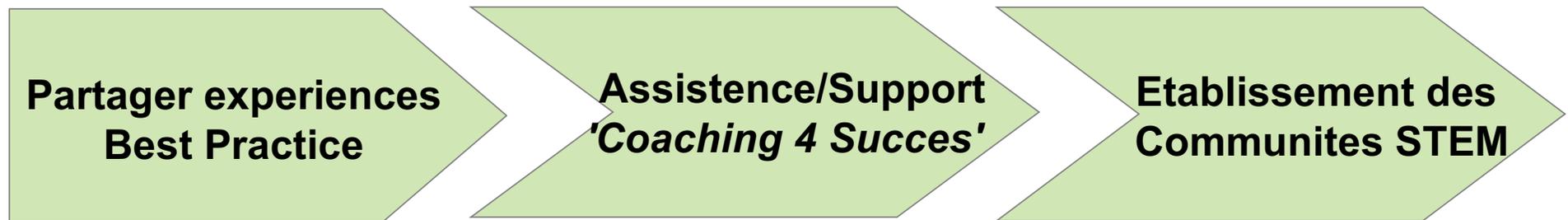
- Copenhagen, Tallinn et **Bruxelles (28 Nov 2017)**



Support central (Bruxelles) & local (Etats Membres)

Engagement pour encouragement depuis Bruxelles des Etats Membres :

- par Conseil de l'Europe, Commission Europeen et Parlement Europeen
- inticee ainsi par des Federation Europeens comme :
Business Europe, CSR Europe, FEANI, ECSITE, etc, etc



Encouragement des Etats Membres depuis les Association nationaux :

- Membres nationaux de BusinessEurope (*Medef, patronat, etc*)
- Membres nationaux de CSR Europe (*Reseau Alliance, etc*)
- Membres nationaux de FEANI (*Ass Nat des Ingenieurs*)
- Centre Scientifique/Fondations/ONG nationaux (*Les mains dans la pate*)
- CEO/PDG (Membres individuels de l'ERT) (*Air Liquide, EDF, Michelin, Total, etc*)



The EUROPEAN PACT 4 YOUTH



Lancé
à Bruxelles
17 Nov 2015

Finale
à Bruxelles
23 Nov 2017



Renforcer les partenariats entre Entreprises & Educations (Elevés & Profs)



Que font les Etats Unies ?

Purpose of US STEM Ed Coalition :



The US STEM Education Coalition **works aggressively to raise awareness** in Congress, the Administration, and other organizations **about the critical role that STEM education plays** in enabling the U.S. to **remain the economic and technological leader** of the global marketplace of the 21st century.

Members of the US STEM Coalition believe that our nation must improve the way our students learn science, mathematics, technology and engineering and **that the business, education, and STEM communities must work together** to achieve this goal.

Que font les Etats Unies ?

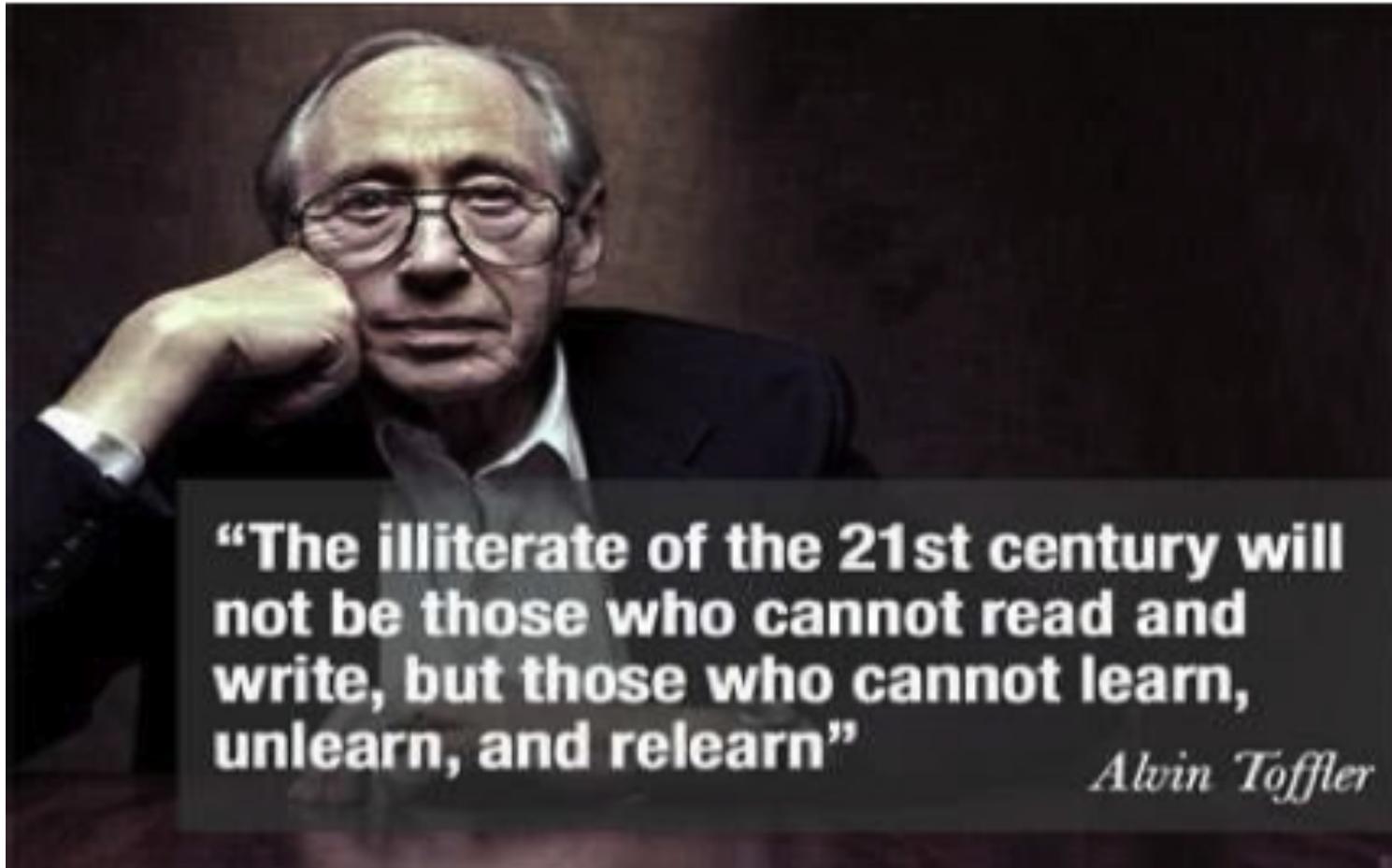
MISSION de US STEM Ed Coalition



STEM education must be elevated as a national priority.

- Our nation's **future economic prosperity** is closely linked with student success in the STEM fields.
- The U.S. must **expand the capacity and diversity** of the STEM workforce pipeline.
- **Policymakers at every level** must be informed about policy issues related to STEM education.
- Effective policies to promote STEM education **should be bipartisan and evidence-based.**

Le Futurologue Alvin Toffler :



Les illettrés du 21ème siècle ne sont pas ceux qui ne savent pas lire & écrire, mais ceux qui ne savent pas apprendre, de-apprendre et re-apprendre.

- **Civilizations rise and fall.**
 - A bunch of mildly clever, highly social apes broke into a cookie jar of fossil energy and have been throwing a party for the past 150 years.
 - Modern industrial civilization has no greater claim to historical longevity than any previous one.
 - **Economic and geopolitical stress in the world today can largely be tied back to energy.**
 - Fights are breaking out over the few remaining cookies, and there are crumbs and spilt milk all over the floor.
 - We are unlikely to alleviate the stress with another cycle of technical innovation.
 - **The energetic and entropic needs of industrial civilization as a dissipative structure are incompatible with the biophysical realities of the planet.**
 - The party is over and radical changes to our way of living are needed.
 - Mildly clever, highly social apes do not voluntarily make radical changes to their ways of living.
 - **Industrial civilization will likely be taken away from us involuntarily (in the near future.)**
 - What pieces of it can and should be preserved?
 - What can we do to make the path ahead less painful?
-

Comment progresser apres aujourd'hui ?

- Reunion organier par Min de l'Education avec partenaires francais supporté par l'UE STEM Coalition (programme, info, partager bonne pratiques)
- Approfondir, assister temoigner à un project au Pays Bas
- Rendez-vous avec representant des Best Practices (Pays Bas, Danemark, Estonie, etc)
- Participation au Assemblee de l'UE STEM Coalition à Bruxelles le 23 Nov

Comment membres nationaux des Federations Européens puissent assister a l'établissement dans leurs pays des Platforms Nationaux STEM (competences 21ième siècle)



- **Rendre compte** de la situation et directions des développement et mettre en alert votre gouvernement. Surtout les Ministères des Affaires Economiques et de l'Education
- **Monter des 'Coalitions de Volonté'** pour preparer le pays pour les défis futurs de façon **Triple hélice : Gouvernement - Ecoles - Entreprises**
- **Engager avec les institutions d'education** pour trouver des moyens d'introduire des role models dans l'écoles et de demontrer auprès les jeunes que les competences STEM sont précieux & utiles pour realiser les ambitions/idéales chers a eux
- **Assurer que l'education STEM est inclus au coeur*** des strategies gouvernementaux pour développement durable, croissance économique, inclusion sociale et lutte contre le chômage
- **Etudier les Platforms deja existantes** pour voir quels elements pourraient être inclus dans un Platform National dans votre pays et votre système d'education

* voir <http://www.stemedcoalition.org> pour position prominent de STEM dans plusieurs programmes aux Etats Unis

l'Essentiel de la Réalité

**Fossil n'est que de l'énergie solaire (photosynthèse) pré-historique,
dont il n'y avait que 500 mio d'années de stockage
dont plus que la moitié a été consommé**

