# **Excel Fast Track**

Project by Andrew Taylor

IS 520

Section 001



# **Executive Summary**

For the past year, I have been running the accounting procedures for the Brigham Young University School of Music. As the student accountant for the School of Music I am given several tasks that are necessary for the department's ongoing functions. A few of these duties include overseeing 100+ student employees, transferring funds through journal entries, filing expense reports, etc. But one of my largest functions includes payment to independent contractors through the BYU payment system called *Fast Track*. I quickly noticed that the process was very ineffective and was taking up a large amount of time. The School of Music, by nature, brings in a lot of outside musicians, lecturers, recording engineers, etc. Each of these independent contractors is unique and provides different obstacles to get by. BYU does not make this process easy. However, there are many steps to the process that can be understood/performed by anyone, which subsequently means these steps may be automated. My goal was to make this process easier and quicker so that time spent is reduced and others less experienced can figure it out without too much effort.

My first step was to organize all of the data in a spreadsheet in a way that would require the associate buyer (person making the payment on behalf of the department, usually myself) to collect all of the required information prior to attempting to process the payment through Fast Track (which is where time is often lost). The spreadsheet also has an area for additional information that makes the process move faster if collected beforehand. The problem I then found was that some of the cells were more complicated to fill out than others. For instance, when a professor wants to make a payment, they should fill out a *payment request form* (see attached form under 'Additional Documentation') with all the required information already on it. When I am handed this paper, I scan it into our system and input the information into the spreadsheet. Therefore, entering the dates to be worked should be an easy step. Categorizing the payment, however, requires a lot of background knowledge of BYU requirements and governmental restrictions on independent contractors, which most people don't have. It then became my goal to implement a series of userforms that would prompt the user to input basic information and answer simple questions that would then complete the process automatically, without additional research.

Now, when a professor brings in a payment request form while I am not in the office, any of our capable receptionists can input the information and start or even do the entire process on their own. And when I am here to do it myself, the process is a lot quicker and requires less flipping through notes and more simple data entry.

# **Implementation Documentation**

Once the *payment request form* is received by the student accountant with all the necessary information filled in by the person making the request (usually a professor who has hired an independent contractor), the process may begin by clicking 'Begin New Fast Track' in the 'FAST TRACK' tab of the ribbon.

# Step 1

You may have noticed that the spreadsheet executed a part of my code upon opening. This was my very first step in the project. This code should reorder all of the data based on the value in *column P* of the worksheet. There are five possible values which I will list in order of importance:

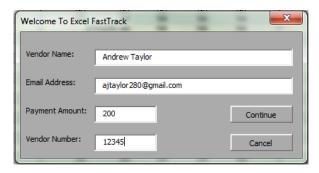
- PROCESS ASAP
- \*Beginning Date of Work\*
- \*An empty cell\*

- SUBMITTED
- DONE

Since this column changes based on where we are with each vendor and the current date, this code will always push the most important vendors to the bottom so we can easily put them as a priority. The formula in *column P* was written in such a way that it is dynamic and could change each day. Prior to this project, it was common for me to lose track of the payments because they would be ordered based on when I received the request, and not based on who has been paid or not. This portion of my project was written in *ThisWorkbook* as an event procedure so that it runs each time the workbook is opened. The event procedure calls another sub procedure (*OrganizeData*), which activates the sheet titled as the current year (i.e. "2015"). From there, I used an IF statement nested in a DO loop that will count variables corresponding to the values in *column P* so the code knows where to put a given line. Each of the above values was given a defined variable that would hold the count of how far down the sheet a given row should be placed. I also implemented a message box that will automatically appear when the workbook is opened to direct the user to the 'Instruction Sheet' worksheet and then to begin the ordering process.

### Step 2

The next step was to begin the input process of a new line. Each time a professor brings in the *payment request form*, we must begin a new line so as to facilitate our process. This new line will make it so we do not try and process any payment without all the necessary information (this wastes a lot of time for us). I first used a formula (a large IF statement) and conditional formatting in *column* Q to indicate when sufficient information has been achieved. I then created the following userform to retrieve the most basic and important information from the user:



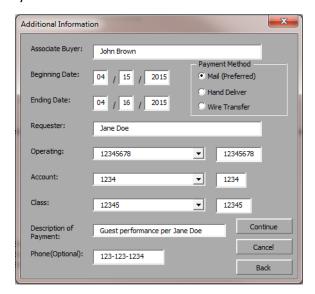
Each of these inputs are directly transferred to their respective cells in the new line. The user will not be able to proceed without filling in the first three text boxes (done with simple IF statements), and if the fourth is left blank, the code is set (using IF statements) to make the corresponding cells yellow so the user knows it must be filled out as soon as possible. The code also looks at the vendor name and checks the folder in our shared drive to see if their W9 (required governmental documentation for independent contractors. See 'Additional Documentation' at the end for more information) is already on file. The code does this by creating a path to our file of W9's and searches for a .pdf file that contains the name of the vendor. If there is one or more, the IF statement I used will return true and the code will return in column I that we already have a W9 on file. Otherwise it will turn yellow to indicate that this must be done as soon as possible. (I was provided some assistance by the TA, Nathan, on this portion. He showed me the concept, then I implemented it.)

Using simple IF statements, I was able to require the vendor to enter a value in certain textboxes before proceeding. I also will mention that I used a simple DO loop to find the appropriate row to edit in the

majority of the forms and sub procedures. This prevents the user from editing any rows that are already complete. I accomplished this by setting the loop to count a variable r until currentYear.Cells(r, 1).Value is equal to a zero length string.

### Step 3

There is a lot of additional information that is either required or helpful that may be easily collected later, but to facilitate the process, we will collect it right at the beginning. This will make the process move forward more smoothly.



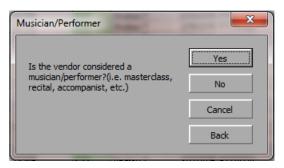
Just like the last userform, all the information in the textboxes will be transferred to the new line when continue is clicked. This is done by simply setting the appropriate cells in the current year sheet equal to the variables defined by the userform. All of the fields are required except for the phone number. And from this point forward, when the back button is clicked, the information will be removed from the new line and the prior userform will appear using the *Hide* and *Show* methods. The cancel button will unload all the forms and end the procedure using *Unload Me*. The back button will also *ClearContents* of any cells that had been filled to that point. All highlighting is also undone using *Interior.Pattern = xINone*. I have also included three comboboxes on this form that are filled with various portions of the account code we will be charging for the payment. The information for the drop down options are pulled from three separate worksheets (Operating Units, Account Codes, Class Codes) within the workbook. I accomplished this by using DO loops to remove all items listed in said comboboxes (*cboOperating.Removeltem*) and adding them again in case more values were added to the worksheets (*cboOperating.AddItem*). The selected value appears in the box to the left to facilitate the transfer of the value to the new line.

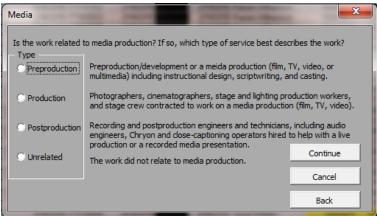
#### Step 4

This step was a bit more complicated. In row AB of the current year worksheet, the user must enter the category of the payment to be made. BYU provides a wide array of categories to cover the vast demands of each different department. Over time, I have noticed that the School of Music only uses about a dozen or so of these categories. The problem, however, is that each category is unique and requires a different combination of information/documentation. I have set up the current year worksheet to provide cells in the new line for all the possible information/documentation (*columns D through 0*). But many times, payments will not require certain elements (i.e. The category ICO 7929 – guest artist – does

not require a contract if they do not work for us for more than 5 days). To better understand this part of the project, please refer to *ICO Category Requirements* (under 'Additional Documentation') attached at the end. These two pages show a few of the more common ICO categories and the required documentation. My code essentially follows these requirements.

To take on this issue, I created a small series of userforms that will allow a person with very limited understanding of independent contractors and government requirements to choose the correct category with little effort. With each answer the user provides, the code will know (or soon know with further answers) what category to use and what is required for that category:





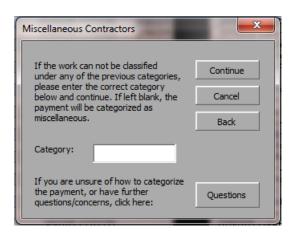
Once the user has selected a category using the userforms, the code will automatically fill in the remaining required cells with either the value 'NA' or yellow fill. The way this works is that each option on the userform has a series of IF statements that will input the correct information in each of the cells on the new line depending on what category it falls under. The most complicated part of this code is for the performer, presenter, and miscellaneous categories. These require specific documentation based on the number of days worked over the past year. To tackle this issue, I use the specific vendor numbers of each vendor to search through both spreadsheets and count the days. I wrote a separate sub procedure that will count the number of work days for me and send it back to my original IF statement to return the required values. The sub procedure that calculates the total amount of days worked uses a very nested IF statement within a DO loop to require certain arguments be met before proceeding to the next line. The arguments that must be met are listed as follows: (1) the beginning date of work must have been within the last year, (2) the vendor cell (column E) must contain a value, and (3) that same cell must be equal to the vendor number entered in the first userform

(basicInformation.txtVendorNumber.Text). From there, the code looks at column AF, which shows the amount of days worked for that particular job, and adds it to the variable totaldaysworked depending on what the value is. This variable (which had to be declared as a global variable) is what determines which values will be placed in the new line.

Every other part of the code is very similar. Each category has different IF statements to display the correct values. There were a few instances where creating new sub procedures was necessary based on the frequency of which I would use the same method. For instance, the sub procedure titled *noAuthorization* under the module titled *aProcess* is called every time a category is finally selected by the user. It essentially sets *column G and H* for the corresponding row as 'NA' unless the user reaches the point in the userforms where additional information is required. Otherwise, the user can just ignore these two cells in the line.

# Step 5

The next step was to offer the user the chance to enter a different category and to provide assistance if necessary. To accomplish this, I used two additional userforms to allow the payment to be categorized as miscellaneous, a self-inputted category, or provide additional assistance. The code for the miscellaneous form is very similar to *formPerformer* and *formPresenter*. The main difference here is that I have set textbox that will allow the user to input a different category and a button that opens up the form *furtherQuestions*:

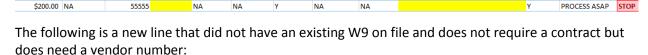




### FYI

I will also include here a few examples of what new lines might look like on the spreadsheet.

The following is a new line that had an existing W9 form on file but requires a contract with a questionnaire:





The following is a new line that requires all the documentation and does not yet have it, including a vendor number:

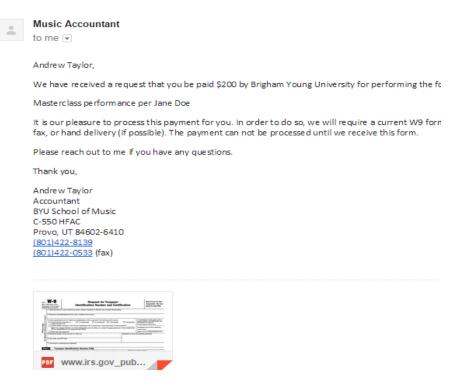


The following is line that has all the required documentation and is ready to go:

650.00	3/12/2015	88526 NA	NA	NA	Υ	3/12/2015 3/12/2015 NA	NA	NA	Υ	DONE	GO

#### Step 6

The next step was to automate the most common email we send out to the independent contractors. Almost every payment requires a current W9 form from the vendor in order to be processed. I have been drafting these emails and wasting a lot of time doing so. With my knowledge of VBA and some help from Ron de Bruin (<a href="http://www.rondebruin.nl/win/s1/outlook/account.htm">http://www.rondebruin.nl/win/s1/outlook/account.htm</a>), I was able to set up an automatic process that sends an email to the given vendor (most recent line on the worksheet) requesting the W9 form be filled out and returned. The email also contains a blank W9 form (December 2014 version) as an attachment. The code also simultaneously sends out an email to my direct supervisor to indicate to her that a payment is being processed. This part was easier than I expected and mostly required that I enable the reference for Microsoft Outlook under 'Tools'. The attachment was added using a similar path to the one used earlier to find an existing W9 Form. The email appears as follows:



# Step 7

The final step was to customize the ribbon so that the user can easily start the process. To accomplish this task, I used the Office Custom UI Editor to edit the .xml's in the ribbon. I retrieved an image from the internet and used one of the Microsoft provided images to serve as buttons for beginning two different processes. The first process is for the user to begin the string of userforms and add a new line. I edited the .xml's so they refer to the sub procedure titled 'entireProcess' in the module titled 'aProcess'. When this button ('Begin New Fast Track') is clicked, the first userform (basicInformation) will appear and begin the process until finished or cancelled. The second process is simple. When the button titled 'Send W9 Request' is clicked, it does the same thing but instead calls the sub procedure titled 'Send W9' which will automatically send the W9 request to the most recently added vendor.

# **Discussion of Learning and Conceptual Difficulties Encountered**

The beauty of this project is that I don't consider this to be done. Don't get me wrong, what I have done will greatly improve the efficiency of our payments at work. However, as I worked through this process, more and more ideas poured into my head of how I can make this even better. And I plan to keep making it better. During the many hours that I spent on this project, I faced several challenges. One of my biggest challenges early on was how to use that same values and processes throughout all of the userforms. Everything I did was related. Many portions of code I wrote was simply copied and pasted across different subs. As I realized this was happening, I discovered new ways to simply reuse the same values (i.e. using 'additionalInformation.txtxxxx.value' instead of referencing the worksheet) or create new subs so all I had to do was reference them. I learned many methods for writing efficient code.

I also found that it is very difficult to go back and fix a problem in a code that you wrote a week before. In particular, the part of my code that looks back through the vendor numbers to see how many days were worked prior to the current job. This portion was so difficult to get working. Then a week after completing it, I would find an error and have to go back and understand the code from scratch before fixing the problem. I learned that simple documentation can save you and future users a lot of time.

The last problem that I will indicate was sending out an automated email. I hoped that what we learned in class would guide me straight to a solution. But I quickly learned that sending an email with outlook was very different. Easier in fact! Here I learned the importance of asking knowledgeable people and using the internet to help find solutions. I also enjoyed that the internet solutions were not simply copied and pasted. Many of them just planted ideas into my head which led me to my solution. The ones that I did copy and paste were ultimately altered by me to work for my code. This helped me prove to myself that I actually knew what I was doing.

#### **Assistance**

This project was overall done by myself. I will add that I received aid at times from online help (Google). I found the Ron de Bruin sites very helpful, especially while trying to write the portion of the code that would automatically send an email with an attachment. I also received help from the TA, Nathan on a few small portions of my code. For instance, he helped me set a worksheet variable to be whichever worksheet was titled the current year. Also the portion of my code that searches through a folder of pdf files to find one I am looking for. Other than these small items of assistance, the code was done entirely on my own.

# **Additional Documentation**

Page 1	Payment Request Form
Page 2 – 3	ICO Category Requirements
Page 4	W9 Form

(The ICO Category Requirements indicate which services we worry about and the userform it applies to. All the required documentation is highlighted in yellow. The ICO number that should appear in *column AB* is underlined in green. For example, since the service listed as 'Catering' requires only a W9 form, the proper fields will return yellow if the code finds no W9 for the vendor and all other documentation fields will return 'NA'.)



	Office Use Only
	W-9 requested ☐ W-9 on file
	Contract/questionnaire on file
Fa	st Track
	Started by:
	Submitted on:
	Authorized/paid
	√-Done X-N/A

# Payment Request Form School of Music

Please return this form to: musicaccountant@byu.edu

rease return this form to. masicaecountantwbya.euu
Date of request:
Name of requester:
Requesting Organization/Studio:
Account name or number to charge:
Amount: \$
Description of payment or reimbursement:
Beginning date of work: Ending date of work:
Will the check be mailed out or hand delivered?
If hand delivered, what date does the check need to be ready?  Please note that checks may not be available until 1:00 pm of the date requested
Make checks payable to:
Is this person currently employed by BYU?
Telephone number:
E-mail address:
Complete mailing address:

FYI— The payee's Social Security number is <u>not</u> required on this form. We will be sending a Form W-9 to the payee that must be completed and returned in order to process their payment. The date that we receive the W-9 is the first day that we can process the payment. From that date, the payment will likely take 5-7 business days and will likely take longer if the payee is not a US Citizen.

# **ICO Category Requirements**

Services	Description	Qualifiers/Requirements  (In all cases, no current or recent BYU employees should be engaged as Independent Contractors)		
	This category refers to formPresenter.	Providing services on <b>5 days or fewer</b> within past 12 months:  ➤ W-9 With SSN or EIN	ICO 8000	
Presenters	Presenters, speakers, lecturers, guest instructors, and symposium, colloquium, and practicum presenters, honorarium recipients	Providing services on 6 days or more within past 12 months:  Independent Contractor Questions  W-9 with EIN^  Signed Independent Contractor Contract*  Invoice(s)  May use SSN on W-9 if cumulative payments to the presenter will be less than \$600 in the same calendar year	ICO 8997	
	This category refers to formPerformer.	Providing services on 5 days or fewer within past 12 months:  W-9 With SSN or EIN	ICO 7929	
Performers	Actors, performers, musicians, models, voice talent, and disc jockeys contracted for live or recorded production  Contractor will perform services without retention of intellectual property rights  Refers to otherOptions.	Providing services on 6 days or more within past 12 months:  ► Independent Contractor Questions  ► W-9 with EIN^  ► Signed Independent Contractor Contract*  ► Invoice(s)  *May use SSN on W-9 if cumulative payments to the presenter will be less than \$600 in the same calendar year	ICO 7951	
Catering	Catering and off-campus retreat functions, including facilities and services	► W-9 With SSN or EIN	ICO 8989	
Reviewers	External or peer reviewers	► W-9 With SSN or EIN	ICO 8992	
<del>Lab Analysis</del>	Laboratory or chemicals analysis	➤ W-9 With SSN or EIN	<del>ICO 8734</del>	
Translation, Text Editing	Text editing, translation, interpreting  Contractor will perform services without retention of intellectual property rights	<ul> <li>Independent Contractor Questions</li> <li>W-9 with EIN^</li> <li>Signed Independent Contractor Contract*</li> <li>Invoice(s)</li> <li>⁴May use SSN on W-9 if cumulative payments to the contractor will be less than \$600 in the same calendar year</li> </ul>	<del>ICO 8995</del>	
Judges or <b>V</b> Referees	Competition or venue officials, judges, adjudicators, or referees	► W-9 With SSN or EIN	ICO 8998	
	This category refers to formMisc.	Providing services on 5 days or fewer within past 12 months and not to exceed \$600 cumulatively in the current calendar year:  W-9 With SSN or EIN	ICO 8999	
Miscellaneous Independent Contractor Services	Miscellaneous Independent Contractor services that do not fit under other Fast Track categories	Providing services on 6 days or more within past 12 months or exceeding \$600 cumulatively in the current calendar year.  (Cannot exceed \$2500 per engagement)  Independent Contractor Questions  W-9 with EIN^  Signed Independent Contractor Contract*  Invoice(s)  *May use SSN on W-9 if cumulative payments to the contractor will be less than \$600 in the same calendar year	ICO 8993	

<sup>\*</sup>Corporate vendors who provide a completed W-9 that is verified by Purchasing are exempt from signing a contract. Non-corporate vendors can be exempted on a case-by-case basis through Regulatory Accounting

# **ICO Category Requirements**

Services	Description	Qualifiers/Requirements  (In all cases, no current or recent BYU employees should be engaged as Independent Contractors)	ICO Category
Media: Preproduction <sub>&lt;</sub>	Preproduction and development of a media production (film, TV, video, or multimedia) including instructional design, scriptwriting, and casting  Contractor will perform services without retention of intellectual property rights	<ul> <li>► Independent Contractor Questions</li> <li>► W-9 with EIN^</li> <li>► Signed Independent Contractor Contract*</li> <li>► Invoice(s)</li> <li>^May use SSN on W-9 if cumulative payments to the contractor will be less than \$600 in the same calendar year</li> </ul>	ICO 7950
Media: Production ←	Photographers, cinematographers, stage and lighting production workers, and stage crew contracted to work on a media production (film, TV, video, or multimedia)  Contractor will perform services without retention of intellectual property rights	Independent Contractor Questions  ➤ W-9 with EIN^  ➤ Signed Independent Contractor Contract*  ➤ Invoice(s)  These categories  *May use SSN on refer to formMedia.  *Intractor will be less than \$600 in the same calendar year	ICO 7652
Media: K Postproduction	Recording and postproduction engineers and technicians, including audio engineers, Chryon and closed-captioning operators hired to help with a live production or a recorded media presentation  Contractor will perform services without retention of intellectual property rights	<ul> <li>Independent Contractor Questions</li> <li>W-9 with EIN<sup>^</sup></li> <li>Signed Independent Contractor Contract*</li> <li>Invoice(s)</li> <li>^May use SSN on W-9 if cumulative payments to the contractor will be less than \$600 in the same calendar year</li> </ul>	ICO 7653
<del>Translation and</del> <del>Dubbing for</del> <del>Media</del>	Translation and language dubbing production to adapt a media project for viewing in languages other than the original language-Includes script translation, adaptation, timing, voice talent, recording, and mixing  Contractor will perform services without retention of intellectual property rights	➤ Independent Contractor Questions  ➤ W 9 with EIN^  ➤ Signed Independent Contractor Contract*  ➤ Invoice(s)  -May use SSN on W 9 if cumulative payments to the contractor will be less than \$600 in the same calendar year	<del>ICO 795</del> 4

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<sup>\*</sup>Corporate vendors who provide a completed W-9 that is verified by Purchasing are exempt from signing a contract. Non-corporate vendors can be exempted on a case-by-case basis through Regulatory Accounting

Department of the Treasury

# Request for Taxpayer **Identification Number and Certification**

Give Form to the requester. Do not send to the IRS.

Intorna	1 Name (as shown on your income tax return). Name is required on this line; do not leave this line blank.							
92.	2 Business name/disregarded entity name, if different from above							
Print or type Specific Instructions on page	3 Check appropriate box for federal tax classification; check only one of the formula individual/sole proprietor or a composition of the formula individual/sole proprietor or composition of the composit	ion Partnership = S corporation, P=partnership) neck the appropriate box in the	Trust/estate cert. Instr Exer line above for cod (Apple	4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3):  Exempt payee code (if any)  Exemption from FATCA reporting code (if any)  (Applies to accounts meintained outside the U.S.)  and address (optional)				
See Speci	6 City, state, and ZIP code							
	7 List account number(s) here (optional)							
Par	t I Taxpayer Identification Number (TIN)			180 mm				
backu reside entitie TIN or Note. guide	your TIN in the appropriate box. The TIN provided must match the nar ip withholding. For individuals, this is generally your social security nur int alien, sole proprietor, or disregarded entity, see the Part I instructions, it is your employer identification number (EIN). If you do not have a in page 3.  If the account is in more than one name, see the instructions for line 1 lines on whose number to enter.	mber (SSN). However, for a ns on page 3. For other number, see <i>How to get a</i>	or .	er Identification number				
Par								
	r penalties of perjury, I certify that: e number shown on this form is my correct taxpayer identification num	nber (or I am waiting for a n	umber to be issued	to ma): and				
2. I a	m not subject to backup withholding because: (a) I am exempt from barvice (IRS) that I am subject to backup withholding as a result of a failulonger subject to backup withholding; and	ackup withholding, or (b) I h	ave not been notifi	ed by the Internal Revenue				
3, 1 a	m a U.S. citizen or other U.S. person (defined below); and							
	FATCA code(s) entered on this form (if any) indicating that I am exem							
interes gener	ication instructions. You must cross out item 2 above if you have be- use you have failed to report all interest and dividends on your tax return st paid, acquisition or abandonment of secured property, cancellation ally, payments other than interest and dividends, you are not required ctions on page 3.	<ul> <li>For real estate transaction</li> <li>of debt, contributions to ar</li> </ul>	ons, item 2 does no individual retireme	ot apply. For mortgage ent arrangement (IRA), and				
Sign Here	Signature of U.S. person ▶	Date >						
Ger	eral Instructions	Form 1098 (home mortga (tuition)	ge interest), 1098-E (s	student loan interest), 1098-T				
Section	references are to the Internal Revenue Code unless otherwise noted.	a Form 1000 C (corneled d	_Lav					

Future developments, Information about developments affecting Form W-9 (such as legislation enacted after we release it) is at www.irs.gov/fw9.

#### Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS must obtain your correct taxpayer Identification number (TIN) which may be your social security number (SSN), individual taxpayer identification number (ITIN), adoption taxpayer identification number (ATIN), or employer identification number (EIN), to report on an information return the amount paid to you, or other amount reportable on an information return. Examples of information returns include, but are not limited to, the following:

- Form 1099-INT (interest earned or paid)
- Form 1099-DIV (dividends, including those from stocks or mutual funds)
- Form 1099-MISC (various types of income, prizes, awards, or gross proceeds)
- Form 1099-B (stock or mutual fund sales and certain other transactions by brokers)
- Form 1099-S (proceeds from real estate transactions)
- . Form 1099-K (merchant card and third party network transactions)

- Form 1099-C (canceled debt)
- · Form 1099-A (acquisition or abandonment of secured property)

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN.

If you do not return Form W-9 to the requester with a TIN, you might be subject to backup withholding. See What is backup withholding? on page 2.

By signing the filled-out form, you:

- 1. Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),
  - 2. Certify that you are not subject to backup withholding, or
- 3. Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income, and
- 4. Certify that FATCA code(s) entered on this form (if any) Indicating that you are exempt from the FATCA reporting, is correct. See What is FATCA reporting? on page 2 for further information.